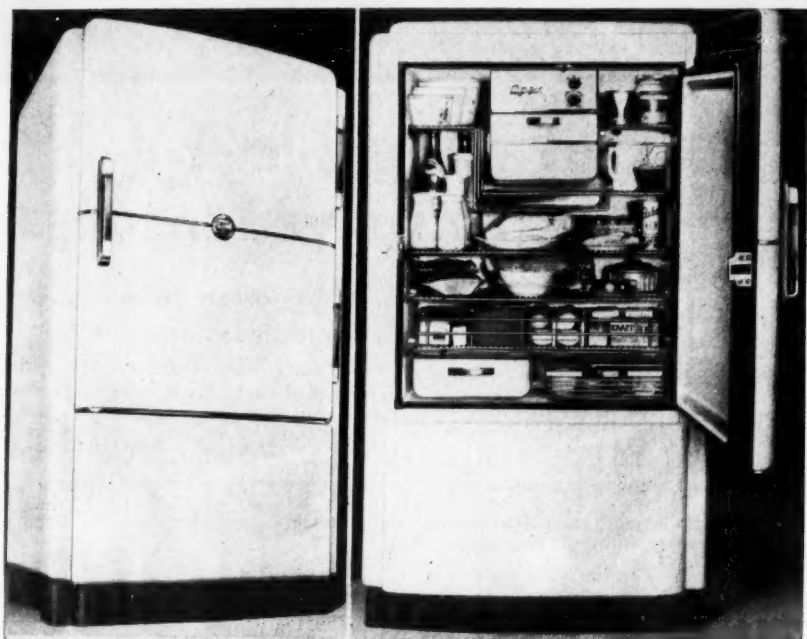


The 1937 'Styled' Apex Refrigerator



Smart exterior design, with full-length door, and new convenience features, distinguish the new Apex refrigerator.

Prices on Two Apex Models Incorrectly Listed Last Week

Prices given on two of the Apex models, listed on page 1 of the Jan. 13 issue of AIR CONDITIONING AND REFRIGERATION NEWS, were in error.

The price on the B-625 model, which was listed as being \$129.95 is correctly \$169.95. Price on the B-665 model, listed as \$169.95, should have been \$199.95.

Convenience Features Stressed in 1937 Dayton Line

(Concluded from Page 1, Column 4) cooling unit for quick chilling of bottled beverages or storage of ice cubes.

On the left side of the second shelf is space for standing mayonnaise and other jars upright. Models also have two removable sections in the middle shelf, which provide space for cooling bulky foods such as watermelons, large rib roasts, turkeys, and large containers.

Bottom left-hand shelf in the cabinets contain a full depth vegetable freshening drawer; and another drawer type tray at the right provides storage for eggs, fruits, and other perishables.

Fast freezing cooling unit is streamlined throughout. The two-tone metal cube tray compartment door is equipped with an automatic device for loosening and raising frozen ice trays from the bottom tray shelf.

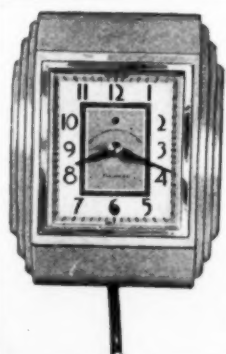
Cabinet interior is of vitreous porcelain enamel, with rounded corners for easy cleaning.

All Deluxe models have a bin for dry vegetable storage in the lower part of the cabinet, below the food compartment.

Condensing unit is mounted in rubber to insure quiet operation. Three inches of insulation is provided in all but the smallest model. Single-cylinder compressors are standard on the three smaller household models; largest model uses a twin-cylinder unit. Motor in the largest model is of 3/4-hp. capacity. In other models, 1/2-hp. motors are used.

Key Specifications of New Dayton Models

Model	Capacity (Cu. Ft.)	Shelf Area (Sq. Ft.)	No. of Trays	Ice Cubes	Lbs. of Ice	—Exterior Dimensions— Height Width Depth
4-E-2	4.0	8.10	2	42	3 1/2	50 1/2 22 1/2 21 1/2
6-E-4	6.23	13.25	4	84	6 1/2	58 30 23 1/2
7-E-6	7.18	16.25	6	126	10 1/2	62 1/2 30 23 1/2
9-E-8	9.30	17.75	8	168	13 1/2	61 1/2 37 23 1/2
15-E	15.3	22.5	..	..	..	69 42 1/2 26 1/2
21-E	20.25	30.0	..	..	..	69 42 1/2 32 1/2



DISTRIBUTORS WANTED FOR THE FROSTOFF DEHUMIDIFIER

The only full Automatic Defrosting Unit for household electric refrigerators. Defrosts Daily—Sells on Sight—Every refrigerator owner a prospect

FROSTOFF CO., INC., MANUFACTURERS
250 East 43rd St., New York City

Advertising Copy Themes Suggested To ACMA Group

(Concluded from Page 1, Column 4) true air conditioning will be used wherever possible in advertising and promotion copy of all kinds. This definition has been formulated by the United States Department of Commerce and the National Better Business Bureau, and is supported by Federal Trade Commission findings. Summer conditioning is described as at least the cooling, dehumidification, and circulating of air. Winter conditioning is at least the heating, humidification, and circulating. Year 'round conditioning is the proper combining of the seasonal functions. Also, air cleansing is almost invariably an integral part of any true air-conditioning installation. Advertisers are planning to differentiate between the various processes wherever copy permits.

"Buy and install now" will be emphasized beginning at once and running through March for various reasons scheduled by the Association committee, and given to the advertisers as copy angles. The season is a low traffic period for commercial and industrial users. Installations can be made at the same time as the redesigning of plant layouts, in the case of prospects making changes in what often is a letdown period of industrial activity. They also can be synchronized with remodeling, renovating, or redecorating of stores.

"Right now the prospect has a complete picture of his 1936 operations, and is in a particularly good position to view the profit possibilities of air conditioning in 1937," said W. B. Henderson, executive vice president. "This will be one of the points stressed in the 'Buy and install now' advertising theme, as well as the fact that the buyer now has a better opportunity for considering air-conditioning equipment layout to the best advantage, can purchase with installation costs due to avoidance of labor overtime, which would be an important factor in a rush job later, and can more completely and successfully plan his own promotion of the fact that he has air conditioning.

"The terrific heat wave of 1936 cost many millions of dollars in plant shutdowns, sharply reduced store traffic, and lowered efficiency of workers everywhere where air-conditioning installations were not available to relieve the highly uncomfortable temperature and humidity conditions. The industry's recommended basic copy principle for March, April, and May consequently will stress the necessity for prompt action to avoid loss of business for a month or more, and will point out that the customer still has time to formulate an adequate promotion program.

"Urgent necessity" is the recommended theme for mid-May and June copy, with hot humid days close at hand and the 1936 heat wave recalled as an indication of conditions that are about to be repeated, in full or in part. The business man who does not air condition his establishment actually pays for his competitor's air-conditioning equipment, and prospects will be told this.

"June and July copy will assure laggards that they still may salvage something of the summer's business, and also have time to profit by the features of fall and winter air conditioning. Recommended copy for the remainder of the year will stress the health features of air conditioning, which, it will be shown, actually are year 'round advantages and are more important in their various ramifications than the comfort features for which summer air conditioning alone is known.

"The profit angle, health, employee efficiency, and customer comfort will be points mentioned consistently in copy throughout the year.

"The air-conditioning industry is new only in its coordination of old and established factors. Actually, what the industry has done is to take standardized, proved products of the industrial and scientific worlds, assemble them, and turn them to the advantage of humanity. Our members' advertising copy will be designed to help establish this truth to the satisfaction of prospective users."

The final quarter of 1936 was the best in the industry's history, and 1937 will far exceed any previous year, according to Mr. Henderson. He declared that the members of the Association already have one-third of their anticipated 1937 volume either sold or being actively negotiated.

BUYER'S GUIDE

SPECIAL RATES APPLY TO THESE COLUMNS ONLY
WRITE ADVERTISING DEPT. FOR FULL INFORMATION

ROTARY SEAL REPLACEMENT UNITS FOR REFRIGERATOR COMPRESSORS



- QUICKLY AND EASILY INSTALLED
- SAVE TIME AND TROUBLE
- PREVENT SHAFT LEAKS

With the many acknowledged advantages ROTARY SEAL UNITS are unquestionable the most perfect replacement seal units available

STRONG, ECONOMICAL, SILENT
GUARANTEED TO GIVE PERFECT SATISFACTION

ROTARY SEAL COMPANY
801 W. Madison St. Chicago, Ill.



PURO

ELECTRIC WATER COOLERS

Thoroughly reinforced all steel attractively finished cabinets.

Complete line of different Models and Capacities.

Write for details and sales prices.

Puro Filter Corporation of America

440 Lafayette Street, New York City

Spring 7-1800

"THERMO" FIN COILS

FOR COMMERCIAL REFRIGERATION AND AIR CONDITIONING

WRITE FOR NEW 1937 CATALOG

AVAILABLE WITH

COPPER TUBES - ALUMINUM FINS
COPPER TUBES - COPPER FINS
COPPER TUBES - COPPER FINS
STEEL TUBES - STEEL FINS

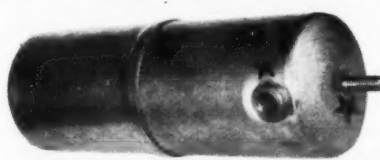
MANUFACTURERS FIN COIL COMPANY

2505-7 So. Pulaski Rd.

Chicago, Illinois

BRAZED IN CONTROLLED ATMOSPHERE

This receiver tank is made with special stampings brazed in a controlled atmosphere electric furnace. This process is the newest of our facilities for producing Pressed Metal Products. We furnish stampings, assemblies, hydrogen brazing and enameling. Stamped compressor bases are one of the many items we supply. Check us for prices.



Acklin

THE ACKLIN STAMPING CO.
Toledo, Ohio
Chicago, Illinois
Detroit, 2-165 General Motors Bldg.

REFRIGERATION PARTS and SUPPLIES

SEND FOR OUR BIG BARGAIN CATALOG

Dependable service that enables you to give speedier service—and the lowest prices possible. That's what you secure when you deal with "headquarters" for America's largest line. Write for catalog on your letter-head. Branches: New York—Cleveland—St. Louis

100% WHOLESALE WE PROTECT THE DEALER

The HARRY ALTER CO. 1728 S. Michigan Ave. Chicago, Ill.

BOUND VOLUMES OF THE NEWS

Each of the following volumes contains all weekly issues of Electric Refrigeration News, later Air Conditioning and Refrigeration News, issued during a period of four months. Stiff paper board covers.

- Vol. 8—Jan 4 to April 26, 1933. (Serial Nos. 198 to 214.)
- Vol. 9—May 3 to Aug. 30, 1933. (Serial Nos. 215 to 232.)
- Vol. 10—Sept. 6 to Dec. 27, 1933. (Serial Nos. 233 to 249.)
- Vol. 11—Jan. 3 to April 25, 1934. (Serial Nos. 250 to 266.)
- Vol. 12—May 2 to Aug. 29, 1934. (Serial Nos. 267 to 284.)
- Vol. 13—Sept. 5 to Dec. 26, 1934. (Serial Nos. 285 to 301.)
- Vol. 14—Jan. 2 to April 24, 1935. (Serial Nos. 302 to 318.)
- Vol. 15—May 1 to Aug. 28, 1935. (Serial Nos. 319 to 336.)
- Vol. 16—Sept. 4 to Dec. 25, 1935. (Serial Nos. 337 to 353.)
- Vol. 17—Jan. 1 to April 29, 1936. (Serial Nos. 354 to 371.)
- Vol. 18—May 6 to Aug. 26, 1936. (Serial Nos. 372 to 388.)
- Vol. 19—Sept. 2 to Dec. 30, 1936. (Serial Nos. 389 to 406.)

Price \$3.00 per volume, f.o.b. Detroit. Shipment will be made by express collect unless otherwise specified. Please send remittance with order.

Business News Publishing Co., 5229 Cass Ave., Detroit, Mich.

THREE WAREHOUSES



LARGE STOCKS
FAST DELIVERY
ENGINEERING ASSISTANCE

MOST COMPLETE LINE OF
Refrigeration and Air Conditioning Supplies—
Coils—Tubing—Gaskets—Accessory Parts—
Valves—Fittings

WILLIAMS & COMPANY, Inc.

CLEVELAND
1748 E. 22nd Street

PITTSBURGH
901 Pennsylvania Avenue

CINCINNATI
Henry & Dunlap Streets

REFRIGERATION NEWS

Established 1926 and Registered U. S. Patent Office as Electric Refrigeration News
Member Audit Bureau of Circulations. Member Associated Business Papers.

VOL. 20, No. 4, SERIAL No. 410
ISSUED EVERY WEDNESDAY

Entered as second-class
matter Aug. 1, 1927

DETROIT, MICHIGAN, JANUARY 27, 1937

Copyright, 1937, by
Business News Pub. Co.

THREE DOLLARS PER YEAR
TEN CENTS PER COPY

Specialty Selling Is Key to Success Declare Department Store Men

*Policies and Opinions on Guarantees, Service,
And Trade-Ins Aired at N. R. D. G. A. Session*

By George F. Taubeneck

NEW YORK CITY—Specialty selling methods, including intensive sales training and outside canvassing crews, received vigorous vindication at the appliance merchandising session of the National Retail Dry Goods Association, in convention at the Hotel Pennsylvania last week.

Discussion over the effectiveness of specialty selling when applied by department stores was raised during the hearing on a report by Edward List of a nation-wide survey of department store policies and practices in the merchandising of major electrical appliances.

Man after man arose to testify that not until his store had adopted the specialty selling technique for the merchandising of refrigerators did sales volume and profits attain satisfactory figures.

General sessions of the 26th annual convention of the N.R.D.G.A. were almost brought to a standstill by the white-hot debate over the "Retail Platform" on relationships of department stores with employees, consumers, manufacturers, wholesalers, and the government—proposing self-regulation and State laws to raise wages so as to increase purchasing power—presented at the opening session by Irwin D. Wolf, vice president of Kaufman's of Pittsburgh.

A compromise was finally arranged between groups representing conflicting opinions on this subject, with the result that a consumer relations committee will be appointed to investigate deceptive advertising, employee relations, contracts with suppliers, and relations with the government.

Broad economic and social problems are to be studied by this committee, which is empowered to make recommendations as to the remedy of abuses.

Theme for the parley was "Solving 1937 Problems of Retailing in the Public Interest." Divisional meetings at which particular aspects of retailing were considered included sessions of the comptroller's congress, store management group, retail delivery association, sales promotion division, merchandising division, credit man-

(Continued on Page 2, Column 1)

York Distributors Meet At Plant Next Week

YORK, Pa.—Second annual convention of the distributors for York Ice Machinery Corp. will be held the early part of next week.

George F. Taubeneck, editor of AIR CONDITIONING AND REFRIGERATION NEWS, will speak following the annual banquet of the convention next Tuesday night, Feb. 2.

York officials have just concluded a series of branch office sales and engineering meetings. These meetings were held in eight different cities.

The sales meetings have been in charge of J. L. Rosenmiller, sales promotion manager; and the engineering and service meetings have been in charge of E. F. Heckert.

Several of the sales meetings (St. Louis, Chicago, Cleveland, and Atlanta) were attended by S. E. Lauer, vice president, and general sales

(Concluded on Page 3, Column 2)

Sparton Convention Put Off to Feb. 5

JACKSON, Mich.—The convention of Sparton refrigeration distributors, scheduled for Jan. 22 and 23, has been postponed until Feb. 5 and 6. General Sales Manager A. T. Haugh announced last week.

Failure of part dies on two models to arrive in time to have the parts struck off before the originally scheduled dates was given by Mr. Haugh as the reason for the postponement.

New Evaporators & Cabinets Mark '37 Copeland Models

DETROIT—Copeland Refrigeration Corp.'s 1937 line of household electric refrigerators, now being introduced to the trade, is featured by an entirely new design in the smaller models in the line, and refinements in the twin-cylinder compressor, used in all models.

The 7-cu. ft. and 9-cu. ft. models retain the rounded "classic" lines that Copeland introduced last year, but the remaining three smaller models are of more conventional design.

Truscon makes the larger cabinets, which have a gently-rounded-out door construction, with the motif carried through to the top of the cabinet to give a "superimposed" effect. These cabinets are finished in Alchemik Primer. The model with 9.01 net cu. ft. capacity has a retail list price (zone 1) of \$251.20, and

(Concluded on Page 20, Column 3)

Carrier Realigns Engineering Staff

NEWARK—Carrier engineers from all divisions of the company's operations and from all parts of the country met here last week-end to get a realignment of duties and assignments to better cover a number of major air-conditioning installations throughout the world.

All available engineers were summoned from research jobs for reassignment of duties. With the company's business claimed to be at the highest peak in its history, every one of the Carrier engineers developed during the past 25 years will be needed on installation work, declared L. R. Boulware, vice president and general manager.

"Air conditioning is no longer the business of the future, but the business of the present—and how!" said Mr. Boulware, in addressing the engineers.

"December was our biggest month in 1936, and the first 15 days in

(Concluded on Page 3, Column 2)

Wisconsin Leaders Welcome Mason

KENOSHA, Wis.—Wisconsin civic, business and industrial leaders welcomed George W. Mason, Detroit, head of the former Kelvinator corporation and now president of the Nash-Kelvinator Corp., at meetings held in Kenosha and Milwaukee last week.

Mr. Mason and H. G. Perkins, vice president of the Kelvinator division, were guests of honor at an informal dinner in Kenosha at which Charles W. Nash, chairman of the board of Nash-Kelvinator, was host. Greetings were extended by representatives of several business organizations, including the Wisconsin Manufacturers' Association.

At Milwaukee, Mr. Mason was guest of honor at a dinner given by

(Concluded on Page 3, Column 2)

Sanitary Subsidiary Introduces New Line

FOND DU LAC, Wis.—Sanitary Electric Co. has announced formation of Continental Electric Corp., a subsidiary recently incorporated to handle the new line of "Continental" electric refrigerators. L. B. Widell is president of the new firm, H. Boyle is secretary, and H. B. Miller is sales manager.

The new "Continental" line, consisting of seven models, was recently introduced at Chicago.

The line contains refrigerators with both single and twin-cylinder compressors. Freon is used as the refrigerant in all except the smallest model, which is of the lift-cover type. Automatic interior lights, swinging

(Concluded on Page 3, Column 1)

Fire Destroys Crosley's Plant K; Unit Plant Unharmed; Will Get Cabinets from Rex and Truscon

*Production to be Resumed When Flood Recedes;
Cabinet Plant Fire Loss Nearly \$1,000,000*

CINCINNATI, Jan. 26 (Special Wire to AIR CONDITIONING AND REFRIGERATION NEWS)—Powel Crosley, Jr., president, Crosley Radio Corp., returned to Cincinnati this morning and after a survey of the plant and a conference with executives of the corporation, issued a statement that the main factory and sources of supply for the manufacture of both radios and Shelvador electric refrigerators remain intact and that if there are no further serious rains it will be possible to resume operations in full as soon as the flood is over.

Servel's Evansville Plant Undamaged But Shuts Down

NEW YORK CITY, Jan. 26—Louis Ruthenburg, president of Servel, Inc., in a telephone conversation late this afternoon (Tuesday) from Evansville, Ind., reported to the main Servel office here that the Ohio River flood conditions which had devastated much of the Evansville area had not as yet damaged the Servel plant, and that the flood waters were not expected to reach the plant unless the crest of the flood, expected to reach here Friday, exceeded present predictions of Army experts.

The Servel plant here which manufactures the Electrolux gas and kerosene refrigerators, and Servel commercial refrigeration and air-conditioning equipment, is located about a mile and a half from the river bed.

The plant has been temporarily thrown out of production, declared C. B. Freeman of the New York City office, with whom Mr. Ruthenburg talked. It was found impractical to operate the plant under the emergency conditions existing in the city, Mr. Ruthenburg had stated.

Servel personnel and equipment were being used in every way possible to assist in rescue and salvage operations. Some boats were being constructed in the plant, and refugees from evacuated areas were being quartered in some of the buildings which had been turned over to the Red Cross.

Evansville is practically cut out from the outside world; it took Mr. Freeman approximately eight hours to get through to Mr. Ruthenburg by long-distance telephone. Mr. Ruthenburg reported that the city was under martial law, and is being evacuated.

It is believed that the plant will go back in operation early next week, or as soon as the flood crisis passes.

American Air Filter Co. Busy Making Rowboats

LOUISVILLE, Ky. (Jan. 25) — American Air Filter Co., manufacturer of filters for air-conditioning systems, is doing its part to alleviate conditions in this flood-stricken city by turning over some of its plant facilities for the manufacture of rowboats, according to a radio news broadcast.

The operation had been put on a production basis, said the report, with rowboats being turned out at the rate of one an hour to meet the urgent need for watercraft for rescue and salvage purposes.

Universal Cooler Reports Lower 1st Quarter Loss

DETROIT—Universal Cooler Corp. reports a loss of \$62,150.05 for the first quarter ended Dec. 31, 1936, after all charges, as compared with a loss of \$82,125.26 for the same quarter in the preceding year.

"Every effort will be extended by the Crosley organization," Mr. Crosley said, "to return its people to work at the earliest possible moment. This can be done as soon as the waters recede and electric power is available.

"If we have no more heavy rains at this time, the water should recede enough to make this possible in two weeks. We have orders for a vast amount of merchandise which will require the operation of our plant at full capacity for several months.

"Fortunately, we have never undertaken to manufacture all of our refrigerator cabinets, and have a second source of supply, the Rex Mfg. Co. at Connersville, Ind.," Mr. Crosley stated.

"This plant has produced Shelvador cabinets for us for several years, and it is able to greatly increase its production at once.

"All of our dies for the forming of the metal parts for the refrigerator cabinets are located at Cleveland, where the Truscon Steel Co. for several years has formed such parts for us. This company is in a position immediately to commence assembly of refrigerator cabinets for us, also. The combined output of Truscon, and the Rex Mfg. Co. of Connersville, will be adequate to supply us immediately with as many refrigerator cabinets as we need."

In summarizing the position of the Crosley Radio Corp., Mr. Crosley said:

"We operate five plants in Cincinnati, including a large warehouse. Fortunately, our main plant at Cole-rain and Arlington Sts. is intact, excepting that we have water on the first floor of our eight-story main manufacturing building.

"This plant was seriously threatened Sunday morning by the fire because of floating gasoline from large storage tanks which were overturned by the flood. By good fortune the fire did not get into our main plant in which we manufacture all of our radio sets and all of our electric refrigerator mechanical units.

"Had fire gotten into the main plant we would have been seriously hurt, and we would have been very seriously delayed in getting back in production because of the difficulty it would have been to obtain new machinery.

"Fortunately for us and for our distributors, nothing of this sort happened. The plant is intact although it is temporarily closed down due to lack of heat, city water, and electricity.

"Across the street from our main plant, building K, a one story, comparatively new structure, 600 feet long by about 150 feet wide, was engulfed by the flaming gasoline which ignited from an electric wire a quarter of a mile away, and was completely destroyed Sunday morning. This building was used for the assembly of our electric refrigerator cabinets.

"This plant and its contents were completely covered by insurance. Its loss will not impair in any way the production of Crosley electric refrigerators as an abundant supply of cabinets is immediately available

(Concluded on Page 20, Column 1)

Dept. Store Appliance Men Outline Policies on Retailing Of Electric Refrigerators

(Continued from Page 1, Column 1)

agement division, personnel and traffic groups.

Reports on some of the more pertinent speeches delivered at the general sessions will be found on pages 7 and 11 of this issue.

Mr. List reported that 20% of the N.R.D.G.A. membership had returned the questionnaire sent out on major appliance merchandising practices. It was difficult to arrive at average figures for this group, he said, because many of the stores had no figures broken down by appliances, preferring to lump them all together in departmental accounting. Replies came, however, from practically all states of the Union, and from department stores of all sizes.

The committee had not tabulated the answers, and the chairman was able only to discuss the results orally.

First question, "how are appliances delivered to customers?" was answered as follows:

Refrigerators—chiefly by distributors or local branches of manufacturers. Some stores do their own delivering, and a very few have it done by outside contractors.

Washers—almost all done by the stores themselves, with a few contracting for deliveries by outside firms. Manufacturers' branches or distributors do not deliver laundry equipment.

Gas ranges—same as for washers. Electric ranges—store delivers the most, manufacturers' branches deliver some.

Second question, "who services the appliances you sell after they are installed?" was answered with almost precisely the same classifications as the first question, indicating that service and installation go hand-in-hand.

In the discussion which followed, many executives declared that service departments maintained by refrigerator distributors were entirely satisfactory.

As for deliveries, it was claimed that it is cheaper to deliver appliances by a store truck, and then send out a man to install them; but the poor coordination which follows—the lapse of time between arrival of the appliance and arrival of the installer—makes customers so angry that it doesn't pay to strive for economy in this manner.

One store manager reported success with a special store truck for delivering appliances. The driver and his helper also install and service.

Changes in 5-Year Warranty Plans Suggested

"What has been your experience with manufacturers' five-year warranties?" was a question which drew replies averaging about 50-50, pro and con. Some of the comments

penciled in on the questionnaire ran as follows:

"Too long and very tricky."

"Salesmen mislead customers."

"Should have 10-year period; customer expects service to continue after five years are up."

"Parts should be guaranteed three years; service given one year."

"Misleading to public."

"The G-E guarantee is entirely satisfactory."

G. M. Halverson of L. S. Ayres & Co., Indianapolis, declaring that his company was definitely against the five-year warranty. It is misunderstood, he claimed, and oversold.

"The customer understands that everything is guaranteed for five years," stated Mr. Halverson, "but how wrong he is. One manufacturer, for instance, doesn't guarantee the fan. Try and convince an irate customer that the fan isn't part of the refrigerator."

"Even when all you do is replace the unit, the store can't make all the necessary trips and bookkeeping incidental for the five dollars the manufacturer allows."

"Furthermore, if you sell other appliances to a refrigerator customer, she expects them to be guaranteed for five years, also. In fact, many owners of ranges or washers will insist that these appliances were guaranteed for five years when they bought them."

S. L. Stein of Gerts, Inc., Jamaica, L. I., suggested that warranties should be reworded so that they cannot be misunderstood (the idea now seems to be that of beclouding the meaning, instead of clarifying it, he thought), and then should be stickered prominently on the refrigerator where the customer couldn't miss them.

Consensus of opinion among the department store executives at the session seemed to be that unless the manufacturer can give an unqualified guarantee for a specific period, he should attempt to give none at all.

"We can't afford to lose good will," was the way one man put it. "We want customers to patronize all departments of our store; if we make them sore in the appliance department through a foggy guarantee we can't make good on, according to their way of looking at it, we lose them for the rest of the store."

It was also pointed out that a one-year guarantee, or a guarantee for the life of the instalment contract (a frequent suggestion), would hasten the obsolescence rate.

Many executives reported that they frequently found it good policy to do free servicing during the guarantee period even if the adjustment was not called for under the warranty. Afterward, they write the customer a letter, telling her what they have done for her to keep her good will.

Only 17% Use Private Brands To Meet Price Competition

"Are you now handling a private brand refrigerator?" was the next question.

Seventeen per cent of the replies said "Yes."

Of those who answered in the affirmative, it was reported that 30% of their aggregate total business belonged to the private brand classification.

None of the department store executives present now handle private brands, although a few reported that they once had tried it, and suffered disastrous experiences. However, in the discussions, private brand refrigerators were offered as the solution to the question: "What can we do about small dealers who cut prices, while we must maintain list?"

Some department stores send out trained shoppers seeking discounts from other dealers. If they get them, the matter is at once reported to the distributor who franchises the dealer. It is up to the distributor or branch to control price cutting in his territory, the executives decided.

Associations can help maintain list prices, it was also agreed. For example, the Richmond (Va.) Refrigerator Club requires each distributor to get permission of the club before he can enfranchise a new dealer. In return, the members agree to purchase up to the quotas assigned them.

In another district the selling price of every refrigerator sold is checked through the finance companies. If the price has been cut, a dealer puts through a claim to the distributor, just as the latter would to his manufacturer if another distributor had shipped a refrigerator into his territory.

After the flurry of discussion on warranties, conversation subsided for awhile, and Mr. List went through his questionnaire returns uninterruptedly.

"What brands do you sell most?" asked the questionnaire. Answerers replied: "Frigidaire, General Electric, Westinghouse—in that order."

Data Given on Time Payments, Discounts, Service Costs

What length time payments do you quote?"

Up to 36 months, came the answers. Of those who replied, 44% declared that they insisted on 10% down payment. The remainder asked for lesser down payments, or none. Some take the trade-in refrigerator for down payment.

"Of your total major appliance sales, what percentage is attained by each appliance?" Answers:

Refrigerators, 50%; laundry equipment, 10 to 30%; gas ranges, less than 30%; electric ranges, 10%.

"What percentage of your sales dollar volume must be marked off for service costs?" Answers:

Refrigerators, 2 to 5% (including installation and delivery). Laundry equipment, 3%. Gas ranges, 4%. Electric ranges, 3%.

"What discount do you give for prompt payment?" Answers:

Refrigerators and electric ranges

are sold net. Laundry equipment, 1%. Gas ranges, 2%.

"What price levels sell best for each appliance?" Answers:

Refrigerators—\$149.50 to \$169.50. Laundry equipment—\$59.50 to \$69.50.

Gas ranges—\$69.50 to \$79.50.

Electric ranges—\$100 to \$125.

Average number of sales annually per department store ran as follows:

Refrigerators, 551; laundry equipment, 542; gas ranges, 486; electric ranges, 29.

Mark-ups on Appliances Average 35-38%

"What mark-up do you place on each appliance?" Averages were as follows:

Refrigerators, 35% (30% on "specials"); washers, 40% (35% on specials); gas ranges, 40%; electric ranges, 40%. Average of all major appliances, 35 to 38%.

"What percentage did your sales volume increase in comparison with the same period of 1935 (Feb. 1 to Nov. 1)?" Answers:

Refrigerators, 10%; laundry equipment, 15%; gas ranges, 10%; electric ranges, 20%.

"What percentage of your total volume was accounted for by 'specials'?" Answers:

Refrigerators, 15%; gas ranges, 20%; electric ranges, 10%.

"What percentage of newspaper advertising to sales volume do you allow?" Replies:

Refrigerators, 2 to 5%; laundry equipment, 2 to 5%; gas ranges, 3 to 6%; electric ranges, 1 to 6%.

"What percentage of sales volume is allocated to salaries and commissions for salesmen?" Replies:

Refrigerators, 10 to 12%; laundry equipment, 10 to 15%; gas ranges, 5 to 10%; electric ranges, 10%.

Handling of Trade-ins Found to Vary Widely

Discussion reopened on the question of trade-ins. Mr. Halverson again was first on his feet, with the interesting information that his organization had taken in "a fair amount" of used electric refrigerators in 1936 for the first time, and that they had rebuilt these and sold them at a profit.

His store maintains a central service organization for all appliances, and to this department is entrusted the rebuilding of the refrigerators and their evaluation for trade-in allowance. This department has its own spray booth. Frequently a new compressor is installed.

These rebuilt jobs are offered at prices close to \$100, with a one-year guarantee. Repairs generally cost the store from \$30 to \$35.

"We have taken in no sealed mechanisms as yet," stated Mr. Halverson. "When that happens, our problem will be altered considerably, and we won't know just what to do."

Although one or two of these rebuilt refrigerators are carried on the floor along with new models, more than 75% of the trade-ins have been sold to the store's own employees. They are advertised for sale in classified newspaper columns.

Among the other reports on this question:

"You can't evaluate a trade-in refrigerator until you see it. Exterior conditions, especially, vary radically."

"We pay our salesmen a straight 5% commission on the sale of a used box."

"You can't make a profit on a refrigerator sale by making an allowance of 10% for the old ice box."

"We have a connection with an independent service company, which buys the used refrigerator, rebuilds it, and disposes of it. Sometimes we add two or three dollars to his offer."

Pittsburgh Merchandiser Gets 900% Increase with Outside Selling Force

Then came the question about the value of specialty selling methods on refrigerators for department stores.

B. U. Upham of the Pittsburgh Mercantile Co., which operates a chain of neighborhood department stores, stated that in its first year as a dealer, selling only from the floor, his concern sold 150 refrigerators. So they went to work to build up an outside selling force. Last year they sold more than 1,300, and nearly all of these were credited to outside selling.

"Working people," he declared, "must be sold on the need for an electric refrigerator. Lots of these people buy their meat on Saturday night, and leave it in the window to cool until it's all used."

Most important task of the dealer, he claims, is to train and keep an outside selling force. Training can't be overdone. His top two salesmen in 1936 had never sold anything before they joined Upham's refrigerator sales crew, but made excellent incomes largely because of their intensive training.

Mr. Upham tries to get young, ambitious people, and then teach them to sell all appliances. This year he kept his outside selling force busy for the entire 12 months, and each one made "pretty good money" on commissions only.

"Commission selling is a tough racket," he averred, "and the supervisor must continually give his men moral support."

His crew canvasses "cold turkey," follows up leads obtained through the store, and pays particular attention to users. The latter provide the most productive "leads." Salesmen often offer users one or two dollars out of their own pockets for good "leads."

(Concluded on Page 3, Column 1)

TRAINING MEN...



that's our business

For 10 years we have been training men for positions in the refrigeration field... "readying" them so the kind of men the industry needs will be available when and where they are needed. We know the kind of training a man requires to succeed in refrigeration work. That is the kind of training we give. In addition to benefiting the man, we believe it benefits the industry as a whole.

UTILITIES ENGINEERING INSTITUTE
404 N. Wells St., Chicago—17 W. 60th St., New York
Inquiries Solicited from Those Desiring Personal Training or the Service of Trained Men

\$ \$ \$ CASH IN \$ \$ \$ ON THIS NEW REPLACEMENT MARKET

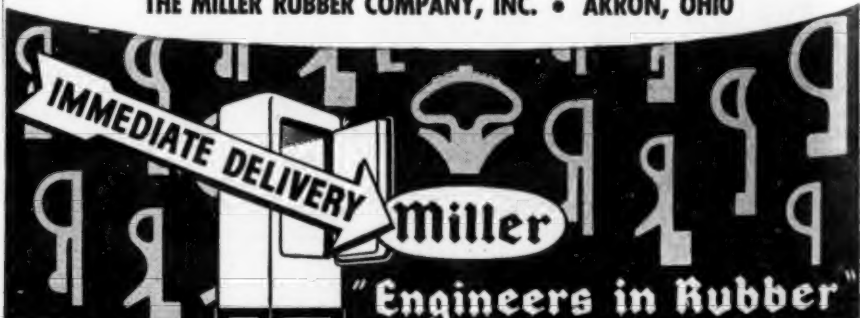
• Door gaskets offer a vast replacement market which is growing every month. Why not cash in on this opportunity by being one of the first to offer this much-needed service?

It's plus business that is easy to get. Easy to handle, too, if you rely on Miller. You can service 80% of all refrigerators made to date from

the Miller condensed line of 20 gasket types. Special type gaskets are also available, if needed.

Every owner of a refrigerator 5 years or more old is a prospect for this service. Supply it and add to your profit. Send for illustrated price list. Call your local jobber, or if he cannot supply you, write direct.

THE MILLER RUBBER COMPANY, INC. • AKRON, OHIO

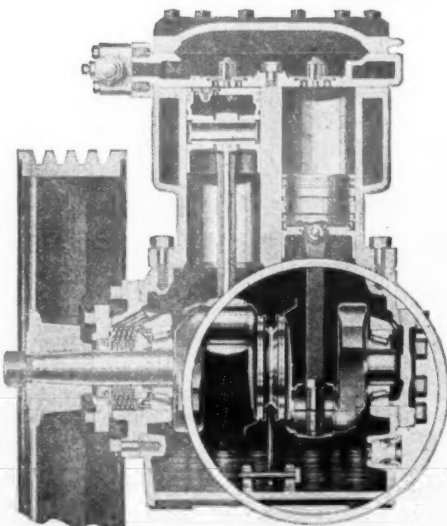
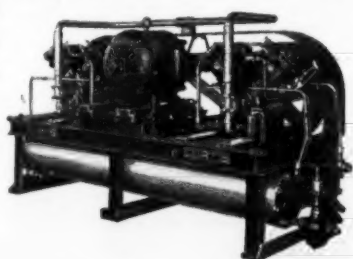


ONLY CURTIS HAS "CENTRO-RING" LUBRICATION

● The Curtis "Centro-Ring" Positive Pressure Oiling System is found only in the Curtis compressor. One simple moving part (a ring) picks up the oil and delivers it to the crank shaft. Centrifugal force distributes the oil under pressure through ducts to all points requiring lubrication. No intricate gear or plunger pump to get out of order—positive and controlled lubrication is assured at all times.

Investigate this exclusive Curtis feature—another example of the advanced engineering that contributes so much to the efficiency and carefree performance of the Curtis Condensing Unit.

Represented in Canada by
Canadian
Curtis Refrigeration Co., Ltd.
20 George St., Hamilton,
Ontario



CURTIS

CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 KIENLEN AVE. ST. LOUIS, U. S. A.

Appliance Managers Discuss Handling Of Sales Force

(Concluded from Page 2, Column 5) according to Mr. Upham. "Floor days" occasionally help the morale of an outside salesman, he declared. F. L. Cashman of the G. Fox Co., Hartford, said that he kept 18 to 20 men working on straight commission (10%) in an outside crew, and that these men averaged from \$35 to \$75 in earnings per week. They are all trained specialty salesmen, kept on their toes by daily meetings, and a vigilant supervisor.

T. Fox of Macy's has just tried an outside selling crew during the last 18 months. He finds it advisable to keep his salesmen on the floor more than outside the store, varying their outside time from one to three days per week, according to the season.

Salesmen lose initiative if they stay in the store too long, he explained, but their earnings drop if they are kept outside too long. Chiefly his outside men follow up "leads" obtained in the store.

Mr. List (of Abram & Straus), offered the information that his store had been quite successful in outside selling, following a plan something similar to that outlined by Mr. Fox. It was suggested that provision of an automobile is a justifiable expense for outside salesmen—they can make so many more calls.

Mr. Upham reclaimed the floor to protest against overlong terms and the elimination of down payments, which practices, he insisted, "are heading us toward the rocks."

"We offer these dangerous terms only because competition does," he maintained. "But why should the combined folly of others total up to wisdom? We are getting into lower income brackets, where the risk is greater. Two years is plenty long to extend terms."

Others put a question mark on winter financing plans (selling a refrigerator in the fall, suspending payments until spring), observing that the customer is likely to return the refrigerator, having made no payments at all, when the new models come out.

Continental Line Uses Freon Compressors

(Concluded from Page 1, Column 3) shelves, and fast freezing trays are included as standard equipment in almost all models. Compressors are of the open reciprocating type.

The "Continental" is available in the following cu. ft. sizes: 2.11, 4, 6, two 7's, 8, and 9.5. The last named model has a twin-door cabinet.

MODERNIZE YOUR REFRIGERATOR WITH SHELF-X SHELVING



Shelf-X* is as modern as the newest refrigerator models. It does away with the tipping of dishes and the dropping of food. The attractive diamond design adds to the refrigerator's appearance. And in addition to its many other advantages Shelf-X is sanitary and easy to keep clean.

Use Shelf-X for air-conditioning units. Because the large open area of Shelf-X assures good air circulation, Shelf-X is as good for air-conditioning screening as it is for refrigerator shelving.

MAIL COUPON FOR FREE SAMPLE

UNITED STATES GYPSUM COMPANY
300 West Adams Street, Chicago, Illinois
Please send me a free sample of Shelf-X with complete details. ACR-1-27
Name _____
Title _____
Company _____
City _____ State _____

*Registered Trade-Mark

MANUFACTURED BY
UNITED STATES GYPSUM COMPANY

Directorate Proposed For Nash-Kelvinator

(Concluded from Page 1, Column 3) the Milwaukee Association of Commerce and attended by more than 100 of the state's business leaders. Mr. Mason expressed a hope that the Kelvinator division of the newly-organized corporation could eventually be expanded in Wisconsin.

A special meeting of stockholders of the company will be held Feb. 23 in Baltimore, replacing the regular stockholders' meeting originally scheduled for Feb. 3. At that time formal approval of the 14-member board of directors, chosen Jan. 12 in Chicago, will be asked. The new directorate consists of six members of the former Kelvinator corporation and eight members of the old Nash board.

New directors representing Kelvinator are: George W. Mason, president; Percy J. Ebbott, New York City, vice president of Chase National Bank; H. G. Perkins, vice president of Kelvinator; H. T. Pierpont, Worcester, Mass., capitalist; Ernest Stauffen, Jr., New York City, vice president Manufacturers Trust Co., and Merlin Wiley, Detroit attorney.

Representing Nash: Charles W. Nash, chairman of the board; C. H. Bliss, vice president and director of sale in the Nash division, and James T. Wilson, all of Kenosha; Sewell T. Avery, Chicago, president of Sears, Roebuck & Co.; Fred W. Sargent, Chicago, president of Chicago & Northwestern Railway; Harold H. Seaman, Milwaukee, president of Seaman Body Corp.; Robert Herrick, Boston attorney, and Emory W. Clark, Detroit.

A 25-cent dividend, to be paid Feb. 20 on stock of record at the close of business Jan. 30, was declared at last week's Chicago meeting.

Distributors for York Meet Next Week

(Concluded from Page 1, Column 1) manager, while the Houston meeting was attended by William S. Shipley, president.

Assisting Mr. Rosenmiller in the sales meeting were J. W. Emig, manager of industrial refrigeration; J. R. Hertzler, head of the air-conditioning division; P. H. Carlson, assistant national commercial supervisor; and W. H. Breen, manager of the dairy division. W. E. Ziezer, assistant chief engineer; and John Consley, head of the mechanical engineering department, have traveled alternately with the sales group in order to answer the engineering questions which arise.

The engineering group includes, in addition to Mr. Heckert, S. F. Nicoll, who discussed air conditioning; J. R. Chamberlain, who treated on industrial and commercial refrigeration problems; and A. W. Ruff.

Carrier Shifts Engineers As Orders Mount

(Concluded from Page 1, Column 3) January have produced as much business as the first two-and-a-half months last year," he explained.

In line with this announcement Mr. Boulware disclosed that the Carrier plant is now working on the remaining refrigeration equipment for what will be the world's largest air-conditioning system—in the J. L. Hudson department store in Detroit. These giant, centrifugal-type refrigerating machines—requiring 5,000 hp. to drive them—will serve more than 1,200,000 sq. ft. of floor space.

Mr. Boulware also stated at the meeting that contracts had been received from the Mitsui Bank in Shanghai, China; the Joseph Horne department store in Pittsburgh; and the office building of the Phillips Petroleum Co. in Oklahoma City.

Other speakers at the week-end session included J. I. Lyle, president of Carrier Corp.; Walter A. Bowe, manager of advertising and sales promotion; and William H. Price, vice president in charge of sales.

Mr. Lyle told the engineers: "The merchant who is surrounded by air conditioning will soon find he will be losing business if he does not make this modernization himself."

In presenting the part advertising plays in the development of air-conditioning business, Mr. Bowe introduced what he called the Carrier "national salesman"—depicted by a life sized figure of a man clothed in covers of publications which will carry the Carrier advertisements.

Two G-E Salesmen Sell 165 Units in Town of 3,000

ELY, Nev.—In this desert mining town of 3,000 inhabitants, two salesmen of the Wilson-Bates Furniture Co., General Electric dealer, have sold 165 G-E refrigerators during the past year.

The salesmen are Donald Bates and Roy Vowles. Mr. Bates is the son of O. G. Bates, owner of the store. He has been selling refrigeration since his graduation from Harvard University last year. Salesman Vowles has qualified as a member of the G-E Toppers club.

Boydin Sales Co. Opens G-E Salesrooms in New Orleans

NEW ORLEANS—General Electric home appliance department sales rooms have been opened at 335 Baronne St. and 1112 Canal St. by the Boydin Sales Corp., according to Edward J. Boyle, president. R. H. Richaud, formerly with Southern Appliance, Inc., here, has been named sales manager.

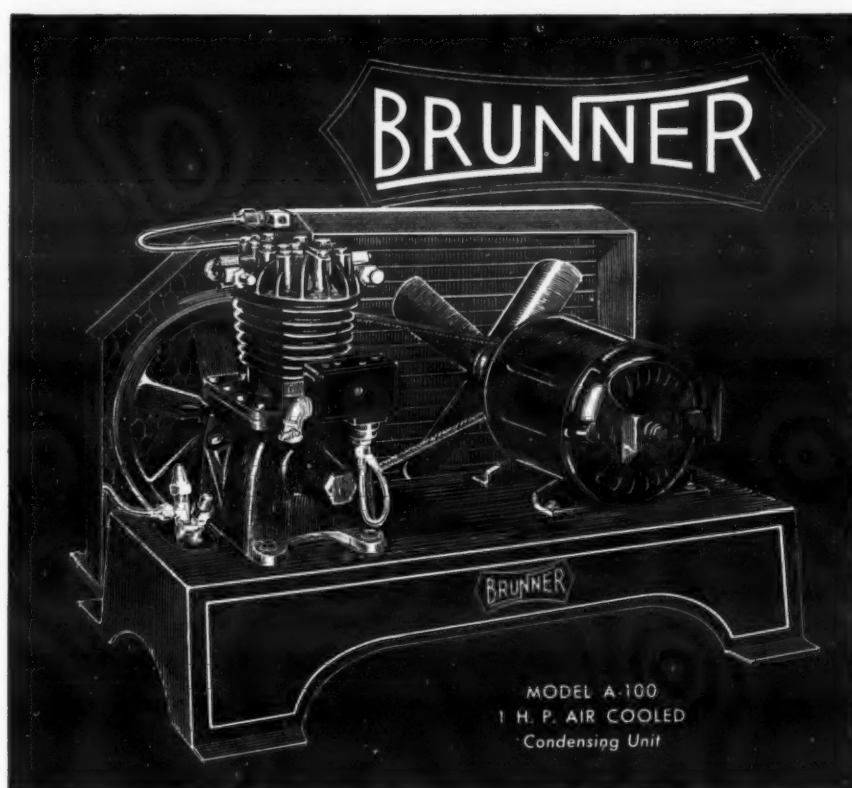
Other officers of the sales corporation are J. D. Hardin Jr., vice president, and Thomas F. Boyle, secretary-treasurer.

Wolverine Tube Addition Expected Ready April 1

DETROIT — Construction of the one-story, 60 by 130-ft. modern office building for Wolverine Tube Co. on ground immediately adjacent to the present factory is well under way and the new building is expected to be ready for occupancy April 1.

Expansion of factory operations as a result of increased business volume necessitated the removal of the company's offices to a separate building. The new structure will be connected with the present plant by an enclosed passageway.

THE LIGHTWEIGHT ALL-STAMPED STEEL BASE CONTRIBUTES TO BRUNNER RUGGEDNESS



Throughout the many years of continuous service built into this Brunner condensing unit, its all-stamped steel base—with no seams to weaken or spread—completes the all-round ruggedness of the unit itself. This particular type of base also safeguards each Brunner unit against breakage in shipment. * * * You'll find some Brunner feature, like this particular one, excelling in every phase of manufacture. Counter-balanced reciprocating parts, for example, machined to close tolerances reduce vibration and wear to a new low... positive "Brunner-seal" insures constant crankcase pressure... special valve-in-head design simplifies valve replacements—these and scores of other Brunner advantages team up to deliver low-cost refrigeration dependably. * * * Let us explain in detail Brunner refrigerating and air conditioning equipment—forty-seven condensing units and five compressor models in a range from ¼ H.P. to 15 H.P. Brunner Manufacturing Co., Utica, N.Y., U. S. A.

BRUNNER

BUILDS FOR *Greater* DEPENDABILITY

Is the merchandising of electric refrigerators headed for a strictly over-the-counter operation, necessitated by the narrowing of the market to low-income homes?

A great deal of loose talk affirming this proposition has been heard in the last year or so, and not a few promotion and merchandising campaigns have been based on the assumption that saturation of homes in the middle-class and high-income groups is an accomplished fact, and that from now

on the industry's output must be moved into low-income homes.

Arthur P. Hirose, statistician for *McCall's Magazine*, wanted to find out for himself how true these assertions were, and so instituted a survey. The results of his research, based on questionnaires, as published in this and the last issue of *AIR CONDITIONING AND REFRIGERATION NEWS*, indicate that the medium-income group still ranks as the best market for refrigerators.

What Income Group, and What Size Community, Have the Most Prospects? Survey Offers Some Answers

The research department of "McCall's" asked 30 gas companies, selected at random: "How were your most recent sales of one hundred automatic refrigerators divided up in the three income groups—low-income, medium-income and high-income?" Twenty gas companies answered the question. The average of their answers was 21.9% to low-income homes, 64.4% to medium-income homes, 13.7% to high-income homes.

The editor of a trade paper, at the request of "McCall's," sent out a questionnaire on his publication's letterhead, omitting any reference to "McCall's Magazine."

The questionnaire study was made among refrigerator and appliance distributors, electric light and power companies that sell merchandise, department stores carrying household appliances, and the home service directors of utilities, dealers, distributors, and manufacturers. In each case the largest available mailing list was used.

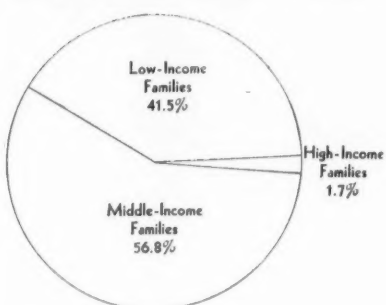
The returned questionnaires were sent in their original sealed mailing envelopes direct to John H. Forshev

& Co. of New York, which specializes on the tabulation of data.

In this trade paper survey 191 distributors, utilities and department stores selling refrigeration answered the question: "What percentage of the refrigerators you are selling this year

Chart 7

(Income Families from which 195 Distributors Expect to get Biggest Sales Increase in 1937.)



are going into different income families?" The average of their replies indicated that 56% of 1936 sales were going into medium-income families, 30% into low-income families and 14% into high-income families.

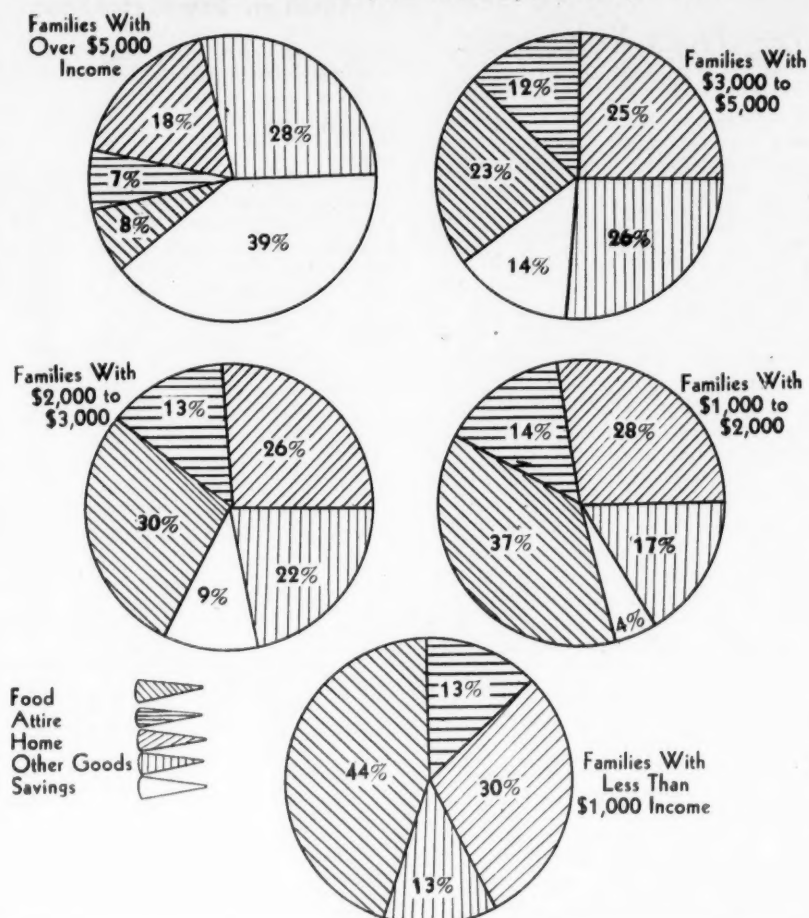
1937 TRENDS

In an effort to find out 1937 refrigerator sales trends, the question was asked: "From what kind of families do you expect to get your biggest sales increase in 1937—low-income families, high-income families or middle-income families?" One hundred and ninety-five distributors, utilities, and department stores supplied estimates. The arithmetical average of their answers was as follows:

Middle-income families 56.8%
Low-income families 41.5%
High-income families 1.7%

In an effort to make more widely available data of service in evaluat-

Chart 8 (How the Average Family Expenditures Are Divided.)



ing the purchasing power of various types of families, the research department has prepared figures based on the findings of the Brookings Institution. Chart 8 shows how average family expenditures are divided in percentages, for families with five different size incomes.

HOUSEHOLD OPERATION

It will be noticed that the item of home expenditures which includes rent, fuel, light, furniture, soap, towels, dishes, pots and pans, appliances and other things necessary for household operation and maintenance, takes up 18% of the income of families having more than \$5,000 income a year. This percentage rises steadily as the income is decreased, being 25% for families with \$3,000 to \$5,000 income, 26% for families with \$2,000 to \$3,000 income, and 28% for families with \$1,000 to \$2,000 yearly income and 30% for families with less than \$1,000 income.

However, the percentages alone do not tell the complete story, as we investigate Brookings Institution findings on how the average family expenditures are divided in dollars.

It was shown that families having more than \$5,000 yearly income spend \$2,175 for home expenditures. In the case of families with \$3,000 to \$5,000 yearly income the home expenditure is \$976. Among families with \$2,000 to \$3,000 income, \$623 is spent on the home. In the low-income groups, under \$2,000, a much smaller amount is spent on the home. This amount is \$411 in the case of families with \$1,000 to \$2,000 yearly income and only \$250 in the case of families with less than \$1,000 yearly income.

EXPENDITURE ON HOME

It will be recalled that the average expenditure on the home among families with \$1,000 to \$2,000 yearly income was \$411.

This figure is roughly \$35 a month. Estimates of average living conditions concede that \$33 out of this \$35 would be necessary for the monthly items of rent, fuel, light and household supplies, leaving only \$2 for the purchase of furniture and household appliances including refrigeration. Even if the entire \$2 were applied toward the purchase of an automatic refrigerator, it is obvious that only a very cheap automatic refrigerator could be purchased and the purchase would have to take place on long terms since the yearly savings of these families having from \$1,000 to \$2,000 yearly income amount to only \$54 a year.

\$35 for rent, fuel, light, furniture, appliances, soaps, dishes, towels, etc.

\$25 Rent
6 Fuel
1 Light
1 Supplies
2 Furniture and Appliances

When the home expenditures of families with less than \$1,000 yearly income are considered, the prospect for automatic refrigerator purchase is even more discouraging. These families with less than \$1,000 income spend \$250 on the home, or roughly \$21 a month. Twenty dollars a month, it is estimated, would cover rent,

than \$1,000 income are unable to make any saving from the yearly budget.

\$21 for rent, fuel, light, furniture, appliances, soaps, dishes, towels, etc.

\$15 Rent
4 Fuel
1 Light
1 Furniture and Appliances and Supplies

A panorama of low-income families in Logan, Ohio, in terms of their purchases, is given in Chart 9. It will be noted that of the principal household utilities, automatic refrigeration is least purchased by these low-income families.

Based on available figures, therefore, low-income families, while numerically attractive and attractive also because they have not yet bought automatic refrigeration in any appreciable quantity, do not offer much market opportunity to the automatic refrigeration industry.

Where Are Most Prospects — In Big or Little Cities?

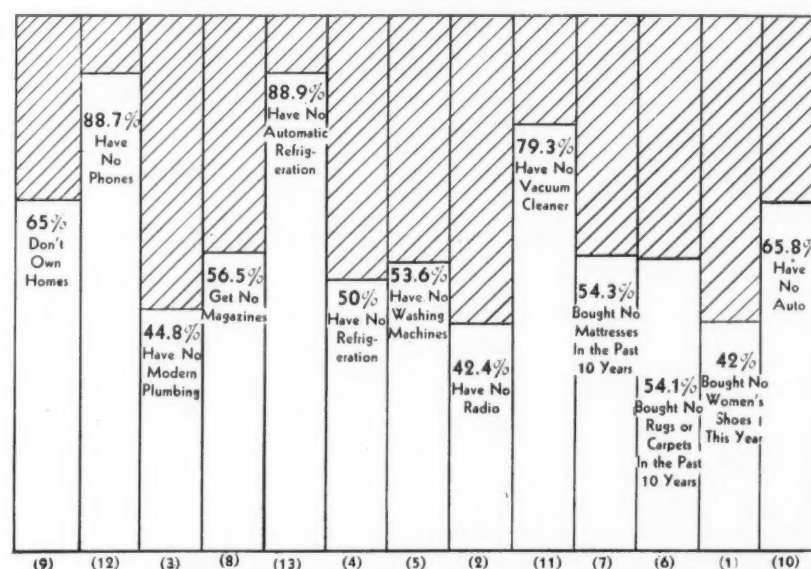
WHICH ARE WORTH MORE TO THE AUTOMATIC REFRIGERATION INDUSTRY — BIG CITY HOMES OR HOMES IN SMALLER COMMUNITIES?

Projecting percentages from the 1930 census of population to the number of families estimated as of July 1936, the research department points out that approximately 50% of American families live in communities with over 10,000 population and the other half in communities with less than 10,000 population.

In an effort to find out whether sales of refrigerators are better in big cities or smaller communities, the editor who conducted the survey for "McCall's Magazine" asked distributors, utilities, and department stores:

(Concluded on Page 5, Column 1)

Chart 9 (A Panorama of the Low Income Families in Logan, Ohio.)



40% more efficient in keeping fresh vegetables — FRESH

—a demonstrable fact that will turn hard-to-close prospects into customers.

The JEWETT 3 COMPARTMENT 3 TEMPERATURE REFRIGERATOR

The new Jewett refrigerator has everything it takes to get the business on a competitive basis—every worthwhile feature that the public wants. And in addition it features the exclusive Jewett Humidifier Compartment which reduces vegetable shrinkage, by weight, more than 40%. You'll need the Jewett Refrigerator exclusive franchise to get the most profit in today's highly competitive market. Write or wire today.

Established 1849

THE JEWETT REFRIGERATOR CO., INC., BUFFALO, N. Y.

PORCELAIN ENAMEL IS ENDLESSLY CLEAN

PORCELAIN ENAMEL IS ENDLESSLY SANITARY

PORCELAIN ENAMEL IS ENDLESSLY DURABLE

PORCELAIN ENAMEL IS ENDLESSLY SATISFACTORY

... for ALL: manufacturer, dealer and customer

PORCELAIN ENAMEL INSTITUTE, Inc.
612 NORTH MICHIGAN AVENUE
CHICAGO

Factors That Influence Purchase of Refrigerator Sought in Market Study

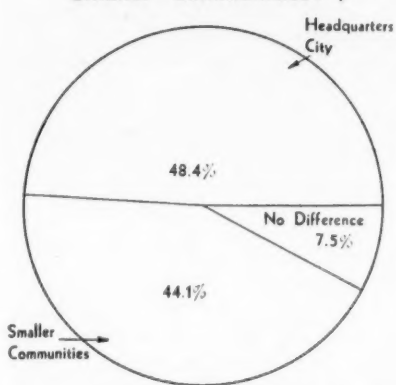
(Concluded from Page 4, Column 5)

"Are your sales of refrigerators and other appliances, in proportion to population, better in your headquarters city or in the smaller communities you serve?"

Of the 186 distributors, utilities and department stores answering this particular question, 48.4% said their sales were better in their headquarters city, while 44.1% said sales were better in smaller communities and 7.5% noticed no difference.

Chart 10

(Distributors Asked: "Are Sales Best in Headquarters City or in Smaller Communities?")



Some of the advantages of small town homes as prospects for automatic refrigeration are thrown into relief by the study conducted for "McCall's" by Dr. H. H. Maynard of Ohio State university.

For example, 50.8% of Logan families own their own homes. The national average is 46.8%.

Homeowners obviously show a greater disposition to buy major household electrical appliances than renters.

93.3% of the homes in Logan, a small town, are one-family homes, whereas only 76.3% of United States homes generally are one-family homes.

A recent survey of a large city in Ohio—Cincinnati—showed that only 63% of Cincinnati families live in single-family homes.

The single-family home is, of course, a better prospect for automatic refrigeration, insofar as the occupant is concerned than the two-family or multi-family home.

87.4% of the homes in Logan, Ohio are wired for electricity which compares with 71.1% of American homes generally that have electric service.

Small-town families are buying automatic refrigeration; 37.2% of Logan families have automatic refrigeration as against less than 30% for the United States as a whole.

Small-town families, based on the Logan study, are buying nationally advertised automatic refrigerators as the following table shows.

Logan Families Buy Nationally Advertised Refrigerators

Make	Homes
General Electric	150
Frigidaire	65
Leonard	60
Kelvinator	48
Westinghouse	43
Electrolux	34
Norge	15
Crosley	13
Grunow	7
Majestic	6
Gibson	6
Sparton	2
Copeland	1
Stewart-Warner	1
Servel	1
Total	452

Each Logan family was asked during what year some form of refrigeration—electric, gas or ice—had been bought.

As the following table shows, over 51% of the Logan families with some form of refrigeration bought an ice box or refrigerator between January

Year in Which Logan Users Bought Refrigerators or Iceboxes

Year	%
1936	17.4
1935	13.3
1934	10.4
1933	10.4
1932	9.3
1931	4.7
1930	7.3
1929	4.3
1928	3.7
1927	2.1
1926 to 1920	14.9
Earlier than 1920	2.1
Total	100.0

1933 and Labor Day 1936 when the survey was made. This would indicate that small towns are buying refrigeration today.

"HOW GOOD IS THE PROSPECT FOR REPLACEMENT SALES OF AUTOMATIC REFRIGERATORS TO PRESENT OWNERS?"

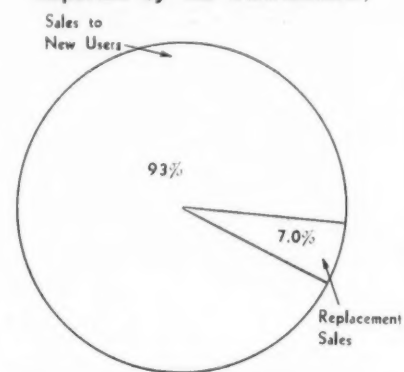
With only 30 million homes in America and yearly sales of automatic refrigerators already reaching the two million mark, the refrigeration industry must either develop replacement sales for its product, or be faced with a steadily declining market.

One of the questions asked by the trade paper of distributors, utilities and department stores was: "What percentage of the automatic refrigerators you have sold this year do you estimate have replaced other automatic refrigerators?" One hundred and eighty-nine distributors, utilities and department stores had records which enabled them to answer this question. Seven per cent of total sales of refrigerators were replacement sales, according to an average of these 189 answers.

Based on figures developed in other years, the replacement market for automatic refrigerators is growing. Naturally, the home-conscious family offers the best market for replacement sales on refrigerators.

Chart 11

(Percentage of Replacements Reported by 189 Distributors.)



"ARE WOMEN OF LESS OR GREATER IMPORTANCE IN REFRIGERATION BUYING TODAY?"

Much of the spontaneous demand for automatic refrigerators has passed. Today refrigerators must be sold. In the selling of any household product two factors are usually involved—the wife and the husband. In attempting to make a sale, should the dealer and the salesman place greater emphasis on the woman or on the man?

The trade paper study made for "McCall's" asked the question: "Are women becoming more or less important factors in the sale of automatic refrigerators?" 191 distributors, utilities and department store executives answered this question. 93.7% stated that women were becoming more important factors in the sale of automatic refrigerators. 4.8% said that women were becoming less important factors in the sale of refrigerators and the remaining 1.1% said that the status of women as factors in the sale of automatic refrigerators had undergone no recent change.

If women are of increasing importance in the sale of automatic refrigerators, what are the features in which they are interested? Does the advertising copy and the sales talk of the refrigeration industry, as it is directed to women, need revision? Carroll & Pelz, Inc., an independent research organization of New York City, made an investigation for "McCall's Magazine" in Flushing, Lynbrook, Riverdale, The Bronx, and New York City proper. This question was put to 100 housewives and 100 husbands:

"Aside from Price, What Feature or Features would Influence Your Choice between Two Automatic Refrigerators?"

How the women voted and how the men voted are shown in the table at the top of column 3. It will be noted, however, that women's interest in refrigeration leans more heavily to interior arrangement, space, convenience, the use of refrigerators in making frozen desserts, the ease of cleaning, the looks, and the noiselessness.

Factors Influencing Refrigerator Purchases of 200 New Yorkers

	How Women Voted %	How Men Voted %
Better interior arrangement for food storage	41	21
Large space inside	3	5
Space for vegetables	2	1
Space for fruits	1	..
Sliding shelves	1	..
Shelves on door	1	..
General convenience of box	1	..
Efficiency in making frozen desserts	10	3
Easier to clean	20	3
Porcelain finish	1	..
Foot pedal to open door	1	..
Better looking	21	3
Noiseless	36	26
Guaranteed	12	9
Well-known brand	35	14
Efficiency of food preservation	34	26
Faster freezing	15	12
Economy of operation	49	40
Quantity of ice cubes	8	8
Most modern	1	1
Mechanical perfection	29	31
What my husband wants	7	..
Safe refrigerator	..	16
Efficient insulation	..	2
Good repair service	..	1
Durable outside	..	1

There are, it is true, a few features of automatic refrigerators on which men and women meet on fairly common ground such as the efficiency of food preservation, the speed of freezing, economy of operation and quantity of ice cubes.

It is interesting to note from the following table, however, that only 7% of the housewives said that the choice of their husbands would be an influence, while 16% of the husbands admitted that the choice of their wives would be an influence.

Men apparently are still interested in the mechanics of refrigeration to

a far greater degree than women.

This study made by Carroll & Pelz for "McCall's" raises the interesting question of whether there is not need for an entirely different type of sales and advertising solicitation for the two sexes.

In an attempt to find out what type of material on refrigerators is most effective in interesting women in automatic refrigeration, the editor of the trade publication asked home service directors to vote on the two types of refrigerator articles now being used in the women's magazines. The conventional type of refrigerator article, used by all women's magazines but one, discusses refrigerators and appliances primarily as pieces of equipment. The other type of appliance and refrigerator article which is used by only one of the women's magazines discusses appliances essentially from the viewpoint of the housewives' use.

Home service directors were asked to vote on the relative merits of these two types of articles. 96.7% of the home service directors voted for articles discussing appliances from the viewpoint of the housewives' use, whereas only .9% voted for articles describing appliances as pieces of equipment. 2.4% of the home service directors votes indicated there was no difference in the appeal of the two types of articles.

If any moral is to be drawn from these votes of the home service directors of utilities, distributors and dealers, it would indicate that the refrigeration industry propaganda, like the women's magazines articles, should discuss automatic refrigeration in terms of the housewives' use rather than in terms of mechanism or machinery.

Dolan Joins R. C. Hudson Advertising Agency

CHICAGO—L. E. Patrick Dolan has become associated with the Raymond C. Hudson advertising agency, 917 Engineering building, as account executive. He was formerly with Commonwealth Edison Co.

Merritt Heads Electrical League of Des Moines

DES MOINES, Iowa—Glenn C. Merritt was elected president of the Electrical League of Des Moines at the organization's recent annual meeting. Mr. Merritt succeeds Vic Thomas.

Other officers elected are: Joe Dean, secretary-treasurer; Joe Schilling, Harry W. Biermann, and Harry Stedman, directors.

A.G.E. Lists Series of Campaigns for 1937

NEW YORK CITY—The annual gas and electric refrigerator drive sponsored by companies in the Associated Gas & Electric System will be held this year from May 10 to June 30. Ice properties of the association will conduct an ice refrigeration campaign during this same period.

The association's load building activities will start Feb. 1 with the launching of an intense drive on gas and electric water heaters and ranges. This range and water heater campaign will be resumed Sept. 1 and carried on until the last of October.

Electric refrigerators, ranges, water heaters, and dishwashers, and gas refrigerators, ranges, and water heaters will all be pushed in December.

Air conditioning will be emphasized during May, June, and July. Commercial refrigeration and liquid cooling promotion will extend from April until August.

SELL THEM
THIS NEW WAY



First, show them and tell them about all the features, of course—for customers like to feast their eyes on all of the newest points of modern refrigerator design.

But bear in mind your visitor has heard or will hear essentially the same story from your competitors—for no refrigerator today has a monopoly on worthwhile features.

Turn the spotlight, therefore, on the very heart of what you really are selling and what your customers are buying—REFRIGERATION!

Especially if you are selling Copeland. For in the Copeland twin-cylinder refrig-

erating unit you have the plus—the added clincher—which turns "well, we'll drop around again" into "how soon can you deliver it?"

Copeland's new finance plan for stocking your showroom, places more importance on honesty than on your financial statement—which means that hundreds of deserving dealers, heretofore handicapped by lack of capital, now can handle the complete Copeland line.

For the facts, write, wire or phone J. D. McLeod, General Sales Manager, Copeland Refrigeration Corporation, Detroit, Mich.

COPELAND

REFRIGERATION CORPORATION

A DALLAS E. WINSLOW INDUSTRY

DETROIT, MICH.

PIONEER MANUFACTURERS OF REFRIGERATION

AROUND THE WORLD WITH GEORGE F. TAUBENECK

With a highly intelligent population, a stable currency, a country unravaged by the World War, a steady influx of tourists' gold, and a national belief in the efficacy of electricity, Switzerland is an excellent appliance market. Only flies in the ointment are—yes, you guessed it—the tariff and the import quotas.

Just who gets the business, and how much, is told by the editor in this instalment of his "World Series" travelogue. Regular followers of Editor Taubeneck's peregrinations around the globe will next read about Holland.

Swiss Sales

Zurich, Switzerland, is a very busy town. It is the metropolis of the German portion of Switzerland, is set on the end of a long lake, and is a thriving industrial city.

Partly because of import quota restrictions, Frigidaire was the only American make represented in Zurich at the time of my visit.

Quotas are assigned in kilos (according to weight), based on the imports of a particular company in 1931. Frigidaire was going strong then, and does not find the restrictions bothersome as others do.

General Electric, for instance, has so small a quota as to make it scarcely worth while to set up an agency.

In addition to quota restrictions, an import duty of 200 francs (\$66) for each 100 kilos (220 pounds) must be paid. Frigidaire's two best sellers in Switzerland have these cash prices: Standard 3—\$240; Master 4—\$950.

Most household refrigerators are sold for cash, although Frigidaire offers 24-month terms. There's a very good reason; i.e., according to Swiss law, if the customer makes one payment he is legally bound to make the rest.

Nevertheless, some 70% of the commercial installations are sold on credit.

Frigidaire Leads

According to Arnold Aeschbacher, Direktor of Applications Electriques S.A. Frigidaire Elektrisch-Vollautomatische K hlung, and A. Zuercher, Frigidaire sells twice as much equipment as its nearest competitor in Switzerland.

Since 1927, Frigidaire has sold more than 8,000 units in Switzerland, and more than 3,000 in Zurich alone. In 1935 Frigidaire sold 1,300 machines in Switzerland, of which 500 were installed in Zurich.

Household sales account for less than 35% of these figures; although the percentage is steadily rising.

Commercial sales are made entirely by direct selling, with salaried outside salesmen. On the other hand, no outside salesmen are employed to move household refrigerators, which are merchandised through display dealers.

Promotion consists chiefly of advertising in newspapers and trade papers, although direct mail is used to some extent.

Most household jobs sold are Duco-finished. There is a steady though smaller demand for porcelain, too. Convenience and pride of ownership are major appeals.

Some service trouble has been experienced with controls.

Little ice is used in Switzerland. Solid carbon dioxide is becoming more prominent in truck refrigeration, and for cooling ice cream in the "kiosks" (little sidewalk booths where periodicals, fruit, chocolate bars, and ice cream are sold).

High prices and quota restrictions have all but kept air conditioning out of the country. Theaters have roofs which slide back to expose the sky on hot summer nights.

Among Frigidaire's leading Swiss competitors are Electrolux, Autofrigor, Thermo Schwanden Glarus (Swiss manufacturer operating under Kelvinator license), Kaegi-Treulin (German Westinghouse), and Krieg (German General Electric).

Electrolux

Electrolux A. G., Zurich branch of the Swedish company, is directed by R. Schwenk. C. Blumer is refrigeration manager.

This firm has done most of its business with "flats" (apartment

of Switzerland, Electrolux ranks second to Frigidaire in household sales.

Mountains & Chocolate

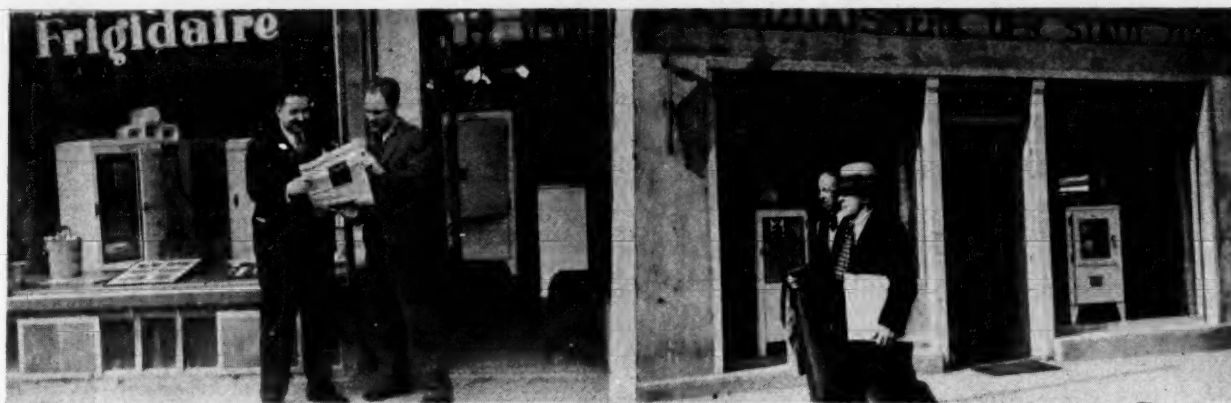
"And what," I asked, finishing a pot of rich hot chocolate, "are the leading industries of Switzerland?"

"Manufacturing," answered my informant, "and hotels."

That latter is no joke. Like the Austrians, the Swiss sell their mountain scenery. They were at it, however, long before the Austrians had even begun to think about promoting the tourist trade.

The Swiss Alps, of course, are so well known that there's little I can

Postman Doesn't Need to Ring Here



Editor Taubeneck gets first glimpse of an issue of the News at the office of Arnold Aeschbacher, Frigidaire distributor in Zurich, Switzerland.

high taxes for the privilege, charge high prices. Possibly influenced by the scenery, everything is high in this land of perpendiculars.

Three-in-One

Switzerland, which claims to be the oldest democracy in the world (date of birth, 1291), is really three different countries, united under one government. There is a large German population, a considerable French portion, and a small Italian group. Swiss bank notes are imprinted in all three languages.

Owing their independence to the (until the time of the airplane) virtual impregnability of their alpine country, the Swiss credit their beginnings as a republic to an early realization of the profits to be had in toll roads.

Their country is situated in the heart of Europe. Through it go commercial arteries connecting Italy, Germany, France, Belgium, Holland, Austria, Hungary, and Czechoslovakia. But it was not always so—not until the diligent Swiss had wrested passageways out of solid rock, over startling chasms, and across turbulent rivers.

For their work they extracted tolls for centuries, and gradually became wealthy enough to institute and maintain a democracy. (Hitler said, in one of his speeches, that no poor country can afford democracy.) Later came the tourists, and industry.

Based on their fine school system, the Swiss bureaucracy is one of the least corrupt, most efficient, and most unobtrusive in the world. State's rights (they call them "cantons") are rigidly maintained.

Oddly enough, despite the inspiration of the scenery, the wealth of the people, and the unusually high educational standards, Switzerland has never produced anything of note in literature or the arts.

Zurich, the Quiet

Zurich, a city of 320,000, is an exceedingly quiet place to spend a Sunday. I arrived there on a Sunday morning, weary from the long ride from Budapest, and from the visual excitement of the scenery en route. But there was so little noise, so much contentment and peace, that I was soon rested.

In a public park across the way from my hotel, the Bar-au-Lac, a German band was playing. People sat outdoors listening, and sipping chocolate, than which there is no better anywhere. Nobody raised his or her voice; the children were subdued. No automobile (and there were plenty in Zurich—most of them by General Motors) is allowed to carry a horn in the city.

By Monday it was a busy place, but still quiet. In the center of Germanic Switzerland, Zurich is the most indus-

trialized of all that nation's metropolises. It leads in the manufacture of watches, electric locomotives, chocolate and condensed milk, chemicals and pharmaceutical products, and submarine equipment. From tributary farmlands come fine cheeses and embroideries for the export trade.

It is situated at the head of a long lake, over which water-borne commerce feeds into Zurich steadily and economically.

Although known more as a commercial and industrial center than a spot for tourists, Zurich does have landmarks for the diligent traveler. There is, for example, the Church of St. Augustine, built in the 14th century for the Augustine Canons and now used by the "Old Catholics."

One of the most elegantly designed buildings in Europe is the Tonhalle, favorite concert hall of Zurich.

The seat of the Cantonal Government of Zurich is in the Rathaus, a large, quadrangular structure built in 1698 in the style spawned by the German Renaissance.

Principal church in the city is the Grossm nster, a Romanesque structure in basilica style belonging to the 12th and 13th centuries. It was dedicated to the legendary martyrs Saints Felix, Regula, and Exuperantius, three Christian missionaries beheaded in Zurich who were said to have carried their heads to a nearby hill and there buried themselves.

On the Lindenhof, now an open space planted with lime-trees, once stood a Roman castrum, which was later converted into a palace for early German sovereigns.

Buildings of the Swiss National Museum, founded in 1891 and opened seven years later, have the appearance of medieval castles, but are entirely modernized. Inside there are 63 rooms of displays of articles dating from the Stone Age to the 19th century.

Among the best-equipped buildings on the Continent are the Federal Polytechnic, the Cantonal Hospital, and the University of Zurich.

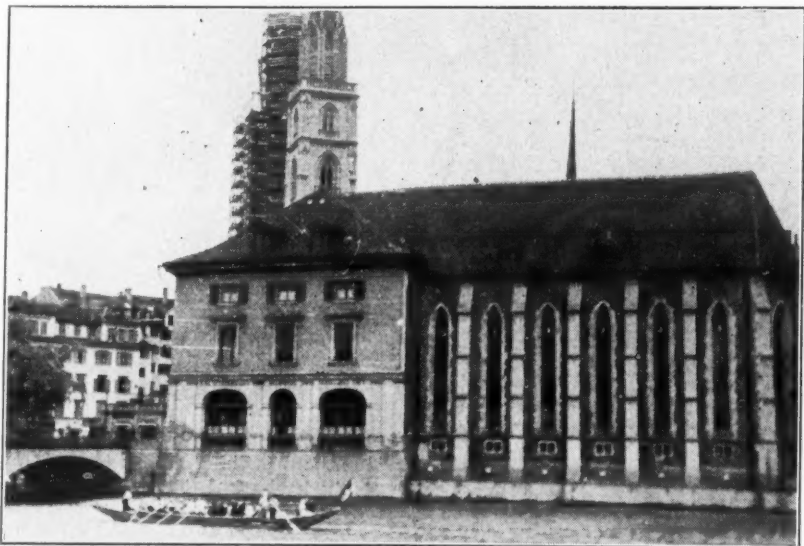
Zurich lies at the head of Lake Zurich, and through the city flow two rivers, the Limmat and the Sihl, which converge in the north end of the town. The Limmat is the outlet for the lake, and eventually wends its way into the Aar and thus to the Rhine.

As you can see from pictures on this page, Zurich is surrounded by hills and mountains, which afford panoramic views of the city and of the outlying countryside. The highest of these peaks are the Uetliberg and the Dolder, respectively 2,855 feet and 2,049 feet high.

Favorite places for excursions are the Sihlwald, an extensive forest belonging to the city of Zurich, and the Limmat Valley.

Lake Zurich is about 25 miles long, (Concluded on Page 8, Column 1)

They Take to The Water



Rowing and sculling are favorite sports of Zurich citizens. A crew from this city gave America's University of Washington oarsmen a hard race for the 1936 Olympic title.

houses), employing two salesmen on an 8-to-10% commission basis, including traveling expenses.

Promotion is carried on chiefly through newspaper and magazine advertising. The latter are published in French, German, and Italian, to reach the three different Swiss population groups.

Approximately 70% of these Electrolux absorption-type household refrigerators are installed with electrical heating elements. (It is interesting to note that even so high a proportion as 30% are equipped with gas heating elements, for Switzerland is known far and wide as the Electrical Country.)

More than 50% of the Electrolux boxes have been installed in the German section of Switzerland. An especially good sales record has been established in the city of Basle, where the municipal gas works has promoted Electrolux heavily.

In Geneva and the French section

tell you about them you haven't already heard or read—and from the pens of really great literary artists.

Most readers also know how marvelous are the Swiss electrified railroads, which have conquered the mountainous terrain by means of seemingly interminable tunnels and breathlessly dizzy trestles and bridges. A trip through Switzerland in any direction is an adventure every minute of the way.

It's a great place to rest and reflect, especially in one of the numerous spots where placid lakes are backed up by snowcapped mountain peaks. And it's also a fine place to send talented children for a high-priced education. Only the Swedes take their schools more—or as—seriously as the Swiss.

Partly as a result of the continual inpouring of tourist contributions, and partly because of their own industry and thrift, the Swiss people live well. They enjoy high living standards, pay

World's Oldest Republic is Calm, Sober, Peaceful, Dignified, Businesslike



(1) Swiss maid in native costume. (2) From this outdoor restaurant on a high hill ones sees (3) the above fine view of Zurich, largest and most highly industrialized city in Switzerland.

Talk before High School Class Leads to Sale

PLAINFIELD, N. J.—Discussing "The Demonstration" before a high school salesmanship class is worth the effort, Fred R. Cavers, manager of the General Electric dealership Home Service Appliances, Inc., of this city and Perth Amboy, N. J., has discovered.

Mr. Cavers spoke before the North Plainfield High School's salesmanship class. Later the class teacher and his wife ordered a V-5 G-E refrigerator.

Satisfied Customers Build Dealer's Prospect List

LITTLE ROCK, Ark.—A "booster club" organized among satisfied Kelvinator customers of 555, Inc., has increased the prospect list and improved refrigerator sales, according to Jerry Dollins, manager of 555's Kelvinator division.

Club members include any Kelvinator owners who submit names of refrigerator prospects to the company's appliance department. Qualifying members are paid a flat fee of \$3, providing the prospect buys a refrigerator.

Since inception of this plan at the beginning of the year, a file of more than 400 live prospect names has been built up, Mr. Dollins says.

New Refrigerator & Range Mark Golden Wedding

CULLODEN, Ga.—Being married 50 years hasn't kept Mr. and Mrs. Lon Chatfield from being strictly modern, as far as electrical appliances are concerned. The couple celebrated their golden wedding anniversary recently by investing in an electric refrigerator and range.

The sale was made by P. E. Talley, of the Macon district sales staff of Georgia Power Co.

sumer promotion. If we don't hurry the consumer will soon be pushing us around. Already the barrage of consumer educational publicity has begun.

WOMEN'S CAMPAIGN

"Right after Christmas we read in papers the beginning of a three-year campaign on the part of the National Council of Women's Forum, a campaign which will reach its climax during the World's Fair of 1939. The Council is setting out to educate shoppers and has analyzed the less efficient shoppers as follows:

"1. The emotional shopper who buys without thinking, from glamorous advertisements.

"2. The bargain sale buyer who looks only at the price ticket.

"3. The woman who buys canned goods by bulk without knowing what weight she is getting.

"4. Women who know absolutely nothing about quality and standards. Manufacturers and retailers are going to be urged to label their products more adequately.

"5. The haphazard shopper who buys impulsively apparel and home furnishings which harmonize with nothing on hand.

"Education by the National Council will gradually transform all these classifications into more critical shoppers. None of these so-called 'less efficient' shoppers have been let down by the stores. Big organizations have taken no advantage of the customer, and don't intend to in the future. Most of us have catered too much to the bargain sale buyer. We have probably made her what she is. Anybody can get her away from us. We hope that outside organized efforts will educate her to pay a fair price for a good article.

"On our part, we can get more information on our labels and signs. We can help manufacturers match colors better from one department to another. Our returns should gradually be cut down. But we had better let the glamour in our advertising alone. There can never be too much glamour in the buying and selling of merchandise.

SUMMARY

"To summarize, how are we going to use advertising and display for better consumer information?

"We recommend that the stores work with all organizations possible to give the kinds of information which they feel that customers need. To do this we shall divide our merchandise into fashion goods and staple goods, and on all staple goods and as far as possible on fashion goods we shall label, display, and advertise informatively.

"We recommend a study of the brilliant use of information on signs and labels of stores which have limitations to conquer—particularly any great store which does not offer its customers the convenience of charge accounts, and more particularly, a study of the stores in Germany today, where so many legal restrictions have been put on newspaper and other advertising that interior display has been elevated to a most important function.

"We recommend a study of the use and development of nationally advertised brands and also of the stores' own brands for advertising and display, particularly since the Robinson-Patman Act imposes restrictions in buying, and since the numerous state price maintenance laws, which presumably will be passed since the Supreme Court decision on the Illinois

law, may act to restrict selling of nationally advertised brands.

"We must not jump at conclusions. We must discover how the consumer's interest will best be served. The promotion department of a store will want to be sure of the need for any new store brands, and of the selection of a suitable line of merchandise on which the store brand is to be placed. Many stores already have enormous customer acceptance for their own brands, but even those stores must take further steps to insure quality by careful comparison and testing. The laboratory should not be an adjunct of the purchasing organization, but should be independently responsible to scientific experts or to some consumer organization to make sure the customer gets the best possible standards.

FINANCING PROMOTION

"A method of financing the promotion of the store brands must be set up, to do the same effective kind of work as the manufacturer's national campaigns and local advertising and selling allowances.

"We recommend further that we follow the progress of every cooperative movement in order to improve our own performance. If our customers want us to do more educational work, if they want us to help them organize consumers clubs, we should get our promotion departments set up to do so.

"We recommend, especially, that we continue in all our thoughts and deeds in the future, as in the past, to improve the methods of distribution and to lower the costs of distribution so that, by lower prices and better values, we can help our customers to enjoy abundance of the things they want and need."

—PROFITABLE SALES METHODS—

'Consumer Promotion' Offers Great Field For Sales Development, Mrs. Swenson Declares at N.R.D.G.A. Session

NEW YORK CITY—Consumers are demanding to know more and more about the things they buy and what those things will do. Stores are complying by furnishing more and more information about the things they sell, Mrs. Dorothy E. Swenson, publicity director of Abraham & Straus, Inc., Brooklyn, told the general session of National Retail Dry Goods Association devoted to consumer relations.

"Our customers want merchandise with an idea in it, in addition to having intrinsic value," Mrs. Swenson said. "They want, unconsciously, to learn something whenever they make a purchase. They want to see what is new, and they want to be informed.

"We stores have tended too much toward advertising everything with a breathless hurry-hurry price story, and as much information as we can throw in or drag in. We've given too little information from the angle of use. The copy on signs and labels must be brought up to the high standard of stores' newspaper advertising.

CONSUMER MEANS CUSTOMER

"Consumer is the best word we sales promoters ever had," Mrs. Swenson said. "A consumer means a customer, a user for our goods and services. Consumer is the word of the moment. It puts the emphasis on what we all hope will be the new way of living, the way of abundance. It gives us a clue that stores' future behavior must follow more diligently than ever, the line we have all been pursuing; namely, to give the consumer every possible break by using all our abilities to lower the cost of distribution.

"What is our consumer like? We do not find out by going down to the main entrance to look the customer over. The consumer is a cross section of civilization itself, and we shall find the more we know about the significant trends and actions in the world, the more we shall know about our customers.

"Trailers will change consumption habits; 5% of the population is now in trailers. Divorce changes consumption habits, especially in housing and home furnishings. In 1900 there were about eight divorces to 100 marriages; in 1930 there were 17.

"The rate of population is declining in this country. Economists estimate a stable population by 1950. This means more adults in the country. When the rate of population growth is going up, business increases. When it is going down, business is harder to get, and a different technique is necessary.

MORE REALISM

"If we, as stores, learn how to be more realistic, we shall avoid many mistakes. Why should a life insurance company be more realistic than a department store? The Metropolitan Life Insurance Co. is issuing booklets such as 'Three Meals a Day, Suggestions for Good Food at Low Cost,' as a means to sell more life insurance, and get more of the consumer's dollar. Perhaps our basements should be telling people how to use cheaper cuts of meat, so that out of the relatively big food budgets that the lower income brackets have to have, they might be able to save a little

more toward better clothing and furniture.

"Brookings Institute findings indicate 60% of the families in this country have incomes under \$2,000 a year. Yet the U.S. Bureau of Home Economics has estimated that, at present prices, \$2,000 a year is the very minimum at which the average family can be adequately clothed, sheltered and fed.

BETTER DISTRIBUTION

"It is to the interest of the department stores that national income should be well distributed, because in the low income brackets at least 50% of the family income has to go for food and only 10% for clothing. This means at present over 60% of the families in this country can not spend much more than 10% of their income in clothing.

"As the family income goes up, a smaller percentage is spent on food and a greater percentage on clothing. The greatest proportion spent for clothing is in the moderate income group, the 'white collar' class. The percentage spent for clothing goes down again in the high income brackets.

"In 1929, the average for the country was 16% spent on clothing, one-sixth of the national income. Out of the consumer's dollar one-quarter to one-third goes to the grower or producer, and one-half or more goes to the expense of selling or distributing. The department store is naturally interested in the consumer's welfare, and in reducing the cost of distribution in order to increase the customer's purchasing power.

VARIETY NEEDED

"Stores must recognize the customer's need of variety, even in the most heroic attempts to keep down the cost of distribution. If only everybody could wear a size 8 shoe, store-keeping could turn immediately into a science instead of an art.

"What are stores doing about the consumer movement? All the leading retail organizations show that they desire and endeavor to be of service to the consumer. One of the biggest in New York is setting an example for all the 48 States of how to make the inside of a store talk, by means of information on signs and by merchandise arranged according to use.

"Most store publicity efforts for better consumer relations have fallen short because they reach so few people. In stores doing \$10,000,000 to \$20,000,000, from 25,000 to 50,000 customers come in every day. Most store stunts reach at best no more than 200 to 2,000 people a day. For this reason the attempt last year of a department store in Pittsburgh to label a large variety of merchandise with specifications was a step in a new direction, a step which some day may well reach every customer in the store every day.

"In London, England, the Retail Trading Standards Association have published 'The Intelligent Woman's Guide to Shopping.' This booklet is along the lines of our long familiar American Better Business Bureau standards, and is backed by the leading retailer distributors of England.

"All of us should decide what action we want to take about con-

LOOK BEHIND THIS NAMEPLATE



You'll get a
new idea of refrigerator salability
when you see the 1937
Fairbanks-Morse Conservador



1 is—The CONSERVADOR, an inner door and separate food compartment. 2 is—The new Self-Sealing Crisper. 3 is—The new Sliding Fruit Basket. All three of these features combined, permit removing two-fifths of all food stored in the cabinet without opening the main food compartment to the warm outside air. 4 is—The new, extra Vegetable or Beverage Compartment. Notice the new, different outer door with a flat double-sealed inside surface and insulation on the outer side. Let us show you these sales features.

Talk about convenience! Talk about economy! Talk about heat-wave-proof protection to food! Name anything you think a refrigerator should have and should do to clinch sales. The Fairbanks-Morse Conservador Refrigerator for 1937 has it and will do it! Behind that nameplate are the greatest improvements in modern home refrigeration. The patented, exclusive CONSERVADOR. New twin-sealed door with insulation on the outer side. Simplified temperature control. Automatic overload protector that resets itself. Self-sealing crisper for vegetables. Sliding fruit drawer. Utility storage compartment. New low cost of operation that you can prove in pennies, right on your salesroom floor.

FREE FLOOR PLAN

For a limited time only—A Free Floor Plan on your initial order. This, plus a limited recourse finance plan at no cost to the dealer, means that you can cash in on the early buying market now. Your distributor has the details.

DIFFERENCES THEY CAN SEE—YOU CAN SELL!

Fairbanks-Morse dealers have a refrigerator line for 1937 that are easy to see—easy to demonstrate—that take that are easy to see—easy to demonstrate—that takes this new line out of the field of comparative sameness—that will clinch sales where small differences would fail. Why not see if you can get this greater profit line? There may be a franchise available, in your territory. Write or wire for the name of your Fairbanks-Morse distributor.

Fairbanks, Morse & Co., Home Appliance Division, 2060 Northwestern Avenue, Indianapolis, Indiana. Other Fairbanks-Morse products: Washing Machines, Ironers, Radios, Automatic Coal Burners.

FAIRBANKS-MORSE

Conservador Refrigerator

(Concluded from Page 6, Column 5)
and varies in width from one to three miles. On one shore are many orchards, while the other bank is lined with terraces of vineyards.

One winter, when the water was unusually low in the lake, some workmen came upon some sunken piles jutting up from the bed. They proved to be remains of prehistoric dwellings. Since then such relics have been discovered in the beds of other lowland lakes in and around Switzerland.

Set back from the lake a few miles is the Abbey of St. Mary in Einsiedeln. The Abbey has become a shrine, and annually draws between 160,000 and 200,000 pilgrims. This gigantic cavalcade of faith provides Einsiedeln with its main source of income and livelihood. In the town is a college of about 80 priests, as well as the largest Roman Catholic printing establishment in the world.

Zug, capital of the smallest canton of the 22, is a quaint, medieval town built on the shores of Lake Zug, which lies between Zurich and Luzern. Its ancient streets, lined by picturesque houses with overhanging roofs and great gables, rise in easy slopes from the lake.

The town itself is encircled by a wall pierced with gates, over which rise massive towers. A circle of new houses and gardens has grown around the outside of the wall since the latter has outlived its purpose.

Government

From a democratic point of view, Switzerland is one of the most, if not the most, advanced States in Europe. Its government, that of a Federated Republic, is based on the Constitution of 1848 which, with modifications introduced in 1874, serves today.

The titular head of the government is the President of the Swiss Confederation, who attains this position *ipso facto* upon being nominated President of the Federal Council. Along with him is named a vice president, each for one-year terms. He is more of a *moderator*, or chairman, than a president.

The Federal Council is an elected body of seven men acting as the executive head during a three-year period for the Federal Assembly. This latter is composed of the two legislative bodies meeting together to conduct the affairs of state.

Each of the 22 cantons of Switzerland elect two members to the States Council, a body corresponding to the Senate in the U. S. Congress.

The other legislative department of the Swiss Parliament is the National Council, whose members are elected triennially in each canton on a basis of population, the proportion being one member to every 20,000 persons. Clergymen and state officials are ineligible to become representatives in the Council.

Similar to the American system of State Governments, as originally conceived by Jefferson and Madison, is the Cantonal Government of Switzerland. Each canton, being virtually a sovereign state, has its own constitution. Except in Uri, Glarus, and Appenzell, where the old-time, open-air parliament of every voter yet

survives (like the old New England "town hall" system), the cantons are divided into electoral areas, and every citizen who is a member of his communal assembly votes in the election of the Cantonal Council, which in turn elects its own executive.

This Council manages cantonal affairs. In a few of the larger cantons the Council is augmented by an Assembly.

Independence and legislative powers of the cantons are not restricted by the Federal Government.

Local government is administered by the Communes, which are bicameral bodies composed of a Communal Assembly and a Communal Council. The former is made up of all citizens in the communal district who are 20 years of age or over; the latter is the executive body elected by the Assembly.

Initiative and referendum are frequently used by the Swiss in proposing and vetoing both Federal and Cantonal legislative measures. To initiate a proposal for a Federal matter 50,000 signatures are required; for Cantonal legislation only 5,000 are necessary.

Education

Elementary school attendance is compulsory for all children between the ages of six and 14, and in some cantons the age limit is increased to 15 and 16 years.

In every town of recognizable size there is at least one cantonal secondary school. In Zurich there is an engineering polytechnical college.

The six Swiss universities, all of German or Scotch style, are located in Basel, Berne, Fribourg, Geneva, Lausanne, and Zurich. That in Fribourg is restricted to Roman Catholic students.

Many well-to-do English families send their children to Switzerland for their primary and secondary education, and to accommodate these foreign pupils a great number of special schools have been established. The chief stronghold of such institutions is in the French canton section of the country, near the western boundary.

Cost of state education falls not on the Federal Government, but on the Cantonal Governments, either alone or in conjunction with the Communal Governments.

Religion

Complete religious freedom exists in Switzerland, except in the case of the Jesuits, whose order and affiliated societies are forbidden to be received anywhere in the country.

In 12 of the cantons Protestants are in the majority, and in the other 10 Roman Catholics are predominant. On the whole, Protestants form about 57% of the entire population, and Roman Catholics about 41%.

The history of struggles caused by various religious faiths in Switzerland is long and tempestuous.

Martin Luther's protest against Roman Catholicism in the 16th century, for instance, swept through Switzerland like a Mississippi flood.

Ulric Zwingli, a priest of Zurich,

became leader of the Lutheran movement in Switzerland, and campaigned against mal-practices of Catholic officials. His doctrines varied somewhat from those of Luther and of Calvin (the French Protestant reformer in Geneva), but his enthusiasm for and effectiveness in his work were fully equal to their zeal, even though he did not achieve wide recognition.

In 1531, at the Battle of Kappel, in which Protestant and Roman Catholic forces clashed, Zwingli was killed. His teachings had been well-enough accepted, however, to insure the adoption of reform to a greater extent.

Three centuries later, the long-standing dissension between the Protestants and the Jesuits culminated in war. The cantons divided, forming sides according to the predominant faith in each, and civil war was the result. The fundamental question was whether or not the Jesuits should be permitted to control the educational organization of the country.

Protestants were naturally strongly opposed to the idea, whereupon the Roman Catholic cantons of Luzern, Uri, Schwyz, Unterwalden, Fribourg, Zug, and Valais formed their Sonderbund, or Separate Confederation, in 1843.

Four years later the Sonderbund troops were defeated at Gislikon by the Protestant army, and the capitulation of the Separatists followed. The Jesuits were expelled, and their monastic property was, for the most part, secularized.

Today, the principal Protestant church is the Calvinist-Presbyterian.

Defensive Army

Jokes about the Swiss navy are no longer funny in this land-encircled nation. As a matter of fact, they're a bit touchy about the size of their army. This is one country of which it is true that the army is constituted as a defensive militia, not as an offensive weapon. Switzerland wants no war, but in case of attack its small army is ready.

Every adult male Swiss under 50

and of sound body is subject to call for service in the army; hence, he keeps in his own home his rifle, kit, and (if in the cavalry) his horse, ready for use.

The active army is composed of the *Elite*, a division for all men between the ages of 20 and 32. At the age of 33 those who have served in the *Elite* pass into the Landwehr for a period of 10 years; and at 44 years of age they join the Landstrum, which includes all men between the ages of 17 and 50 who do not belong, or have not belonged, to one or other of the foregoing groups.

Training periods range from 80 days in the first year for "green" cavalrymen to 12 days per year later on. The total Swiss war strength approximates 260,000 men. It can be mobilized quickly.

Pennines to Heaven

Except for a long, narrow, undulating plain extending across the northwestern part of the country from Lake Constance to Lake Geneva, Switzerland is almost completely intersected by various branches of the Alps.

The Pennine Alps, which are the main ridge, enter from Italy in the southwest corner of Switzerland and extend eastward from Mont Blanc until they merge with the Lepontine Alps. The latter carry the chain further east to the Rhaetian Alps, which continue on out of Switzerland in the southeast corner and back into Italy.

The Pennines descend into the valley of the Rhone, from which point the land slopes upward again to the Bernese Alps, parallel to, and some miles north of, the Pennine group. In the Pennine Alps are the renowned Mont Blanc, highest peak in the entire Alpine country, reaching a height of 15,780 feet; Monte Rosa, highest peak in Switzerland; and the Matterhorn, the climber's challenge, rising 14,780 feet.

The Great St. Bernard Pass is also in the Pennines. The Jungfrau, which is 13,671 feet high, is the highest and best-known peak in the Bernese Alps.

It's probably the most spectacular of all Switzerland's altitudinous glories.

Entering Switzerland from France just north of Geneva, and extending in a wide arc around the greater part of the great plain, are the Jura Mountains. Snow and rain drains down these into Lake Geneva, the 15,780 feet; Monte Rosa, highest peak in Switzerland; and the Matterhorn.

There are several lesser ranges of the Alps, both in and out of Switzerland. The Bernina group in the southeast corner of Switzerland forms part of the dividing line between the latter and Italy. Crossing the Rhaetians are the Albula Alps, also in the eastern portion of Switzerland.

Between Switzerland and the Tyrol are the Silvretta Alps, lying at the end of the Albula chain. Just northwest of the Silvrettas is the Rhatiron Chain, separating Switzerland, Liechtenstein, and the province of Vorarlberg in Austria.

From a height of over 15,000 feet, Switzerland drops to its lowest level of 646 feet above sea level on the shore of Lake Maggiore, which joins Italy. With such a great variation in altitude there naturally follows a wide variety of climate.

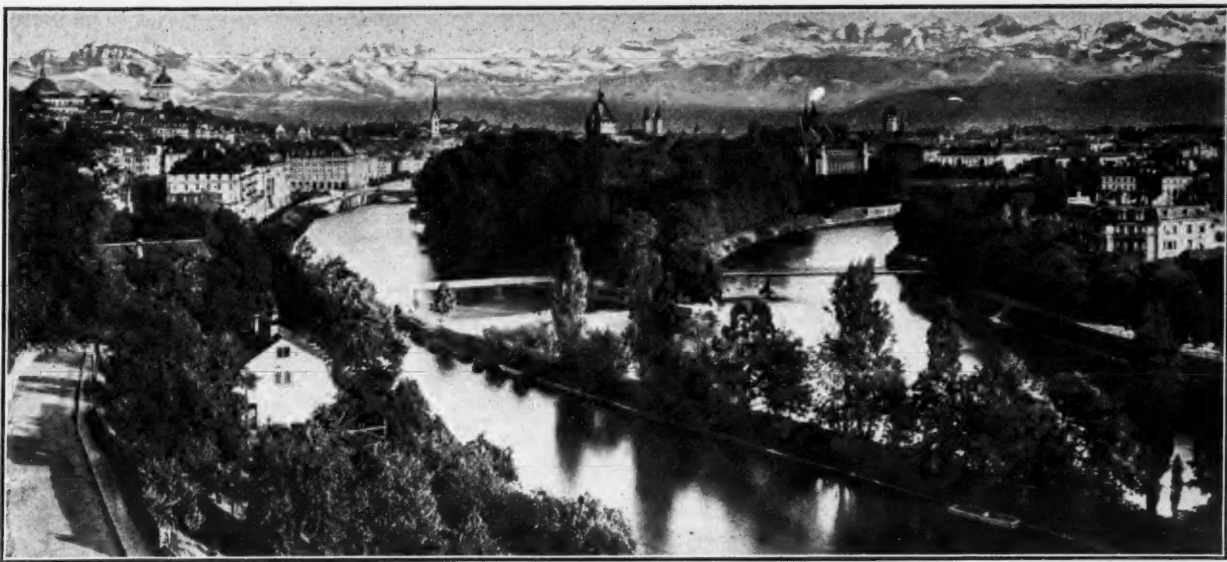
The mean annual temperature ranges from 53° at Lugano in the south-central lake district to 29° in the St. Bernard Pass, over 8,000 feet up in the Pennine Alps. Winter is practically continuous in the St. Theodule Pass, 10,899 feet high; whereas it usually lasts but three months in the low-lying lake regions.

Variation in the mountainous conformation creates a scale of precipitation which ranges from 87 to 22 inches annually.

Close to 4% of the area of the country is perpetually blanketed by snow and ice, the latter taking the form of glaciers, of which there are more than 450.

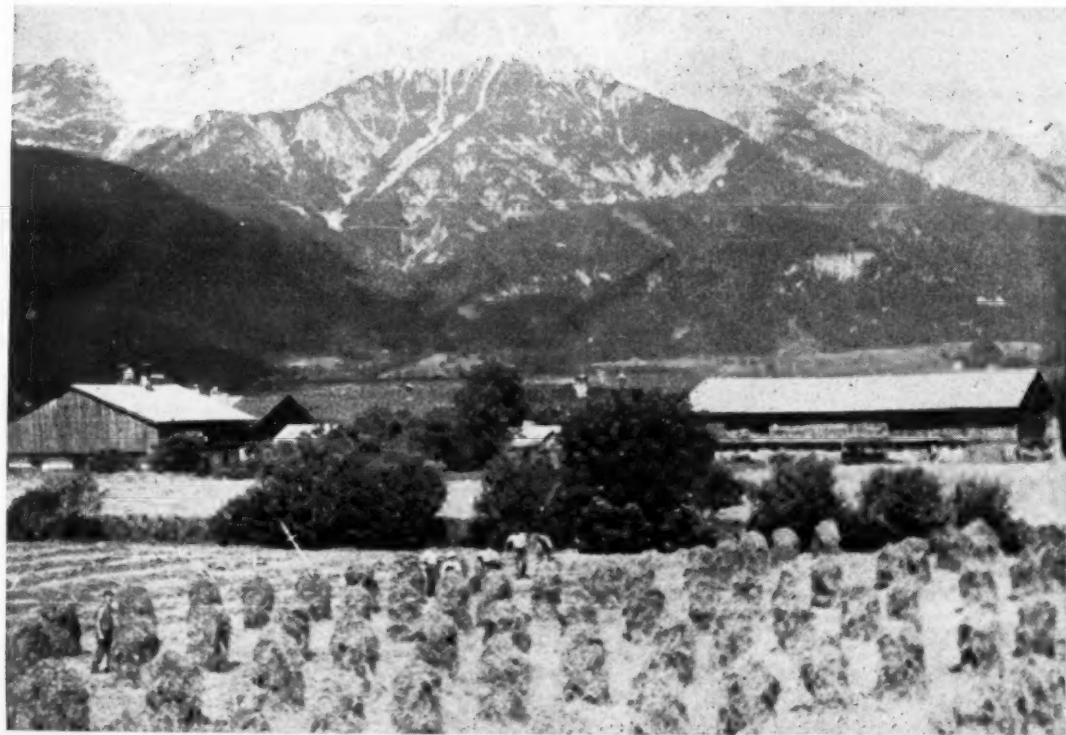
Lake Geneva empties into the Rhone, which flows through southeastern France on into the Mediterranean. The southern lakes are drained by the rivers Po and Inn, and the eastern waters eventually run into the Danube.

Zurich—Industrial Capital of Switzerland



Favorably situated at the head of a long lake, in the heart of the industrialized Germanic sector of Switzerland, Zurich is a thriving commercial and manufacturing center.

Swiss Alps Provide Problems as Well as Profits to Inhabitants



(1) Swiss farmers cultivate intensively the valleys between mountain ranges and spurs. (2) Electrified railways in Switzerland are marvels of engineering. They traverse formidably mountainous country by means of an almost continuous series of tunnels and giddy trestles. Accidents on its rail system are as rare as heat waves in Switzerland.

Birmingham Dealers Report 500 Commercial Sales

BIRMINGHAM, Ala.—Commercial refrigeration sales in Birmingham in 1936 totaled more than 500 units with a dollar volume of more than \$200,000, and indications are that sales for 1937 will be even greater—probably up to 50%, according to a recent report by the Birmingham Electric Co.

Reasons for expectations of a big year in 1937 include the following:

1. More commercial concerns are on a substantial basis with good credit and are in need of replacing obsolete equipment.
2. The potential market for electric water cooling is the greatest ever.
3. New applications for refrigeration service such as frozen foods, bottle and beverage cooling, flower storage, bread and pastry cooling, etc.
4. Increase in amount of modernization.

Retailers Warned to Keep Eggs Refrigerated

ALBANY, N. Y.—Retailers selling eggs have been warned by the New York Department of Agriculture and Markets to "keep them under refrigeration at all times until used."

Eggs are as perishable as milk, cream, butter, or meat," the department said. "Eggs stored at room temperature, even for few hours, undergo a steady lowering of quality."

The department has advised consumers not to expect to get the grade they pay for unless the eggs are under refrigeration at time of purchase.

Parks Buy Distributorship For Sure-Cold in Tulsa

TULSA, Okla.—Purchase of Bewley Fixture Co., Tulsa distributor of the Sure-Cold line of commercial refrigeration equipment, has been made by Henry H. Parks and John M. Parks. It will be known as Parks Fixture Co.

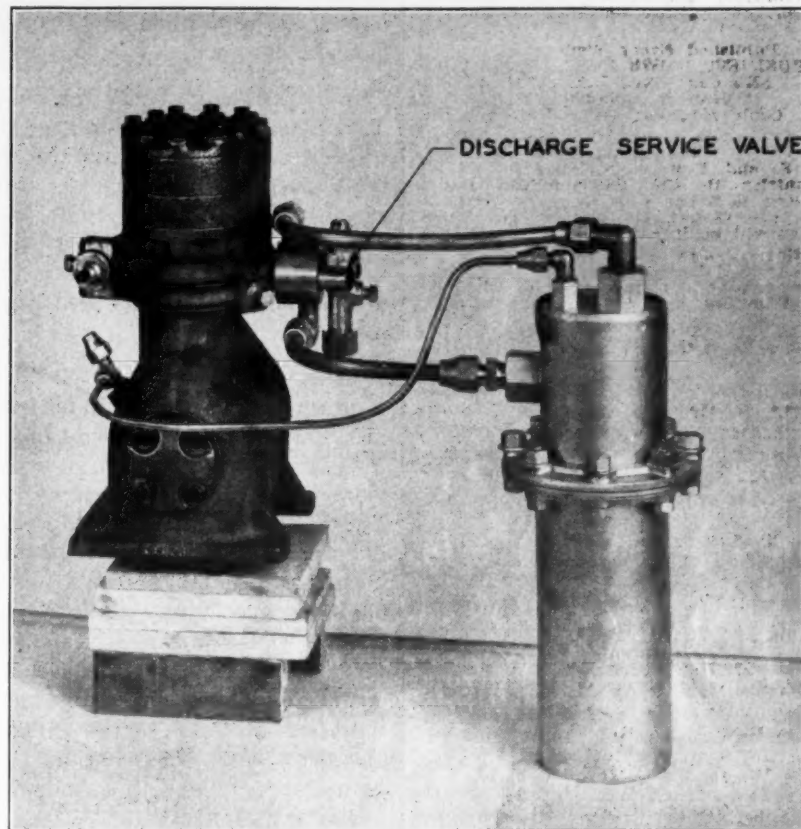
Three important advantages result from keeping oil out of the cooling unit. In the first place, the absence of the inert oil permits the refrigerant to evaporate at its true boiling point, giving the required temperatures at the highest possible back pressures.

In the second place, the presence of an oil film on the cooling unit surfaces materially reduces heat transfer. When the film is absent efficiency is again restored.

Third, the operation of the condensing unit is also improved because the proper amount of oil is always in the crankcase. It is becoming common practice with manufacturers to equip their methyl chloride and Freon-12 condensing units with oil separators for use on expansion as well as flooded low sides.

Oil separators are made in various sizes and the size separator required is determined entirely by the size of

Connections Through Discharge Valve



Photograph showing how Temprite oil separator is connected to compressor by means of an adaptor on the compressor discharge service valve.

COMMERCIAL REFRIGERATION

Operation & Installation of Oil Separators For Methyl Chloride and Freon Units

By the Engineering Department, Temprite Products Corp.

OIL in the low side of commercial refrigerating systems—particularly those operating on the flooded principle—sometimes presents a problem.

Oil is placed in the refrigerating system only for the lubrication of the compressor and is unnecessary in any other part of the system. Unfortunately, however, a certain percentage of the oil is normally carried over into the cooling unit by the refrigerant. In certain types of compressors the percentage of oil carried over may be quite high.

In the case of systems using sulphur dioxide as the refrigerant, the oil and refrigerant separate in the flooded low side, and provision can be made within the cooling unit for automatically returning the oil to the crankcase of the compressor.

The situation, however, is different when methyl chloride or Freon-12 is used because with both of these refrigerants, oil is completely soluble in them and separation, as in the case of sulphur dioxide, does not result.

It is possible, therefore, if a large quantity of oil is pumped over into the low side by the compressor, to produce a high concentration of oil in the flooded evaporator and to greatly reduce its effectiveness by reason of this.

Under conditions of very light load it is possible for a flooded low side

to become "oil logged" and render itself inoperative. Reduced efficiency also takes place in the case of expansion systems when oil is present.

The remedy for this condition is to prevent the oil being carried over into the cooling unit. This is done by installing an oil separator on the condensing unit.

Although it is difficult to separate oil from the refrigerant when both are in their liquid state, the separation can be effected easily while the refrigerant is still in vapor form. The

Model No.	Pipe Size										Max. Capacity—Hp.	
	A	B	C	D	E	F	G	H	I	J	Methyl	Freon
1	3/4	3/4	3/4	4	9 1/2	4 1/2	1 1/16	8 11/16	11 3/16	2 1/2	1 1/2	
2	1 1/4	1 1/4	1 1/4	4	14 1/2	4 1/2	1 1/16	8 11/16	11 3/16	3	2	
3	1 3/4	1 3/4	1 3/4	4	17 1/2	4 1/2	1 1/16	8 11/16	14 3/16	3	2	
4	1 3/4	1 3/4	1 3/4	4	20 15/16	5	1 1/16	10 1/2	17 1/4	5	3	
5	1 3/4	1 3/4	1 3/4	4	20 15/16	5	1 1/16	10 1/2	17 1/4	7 1/2	5	

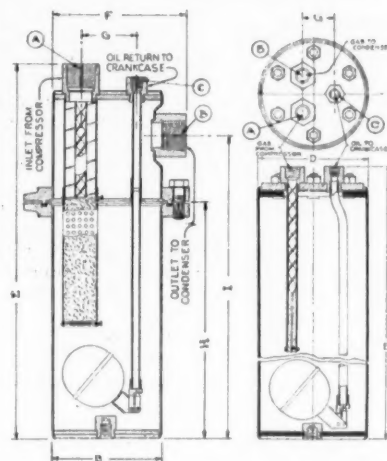
oil separator, therefore, is connected to the compressor discharge and separates the oil from the refrigerant while the latter is still in vapor form.

The oil falls to the bottom of the separator and pure refrigerant gas then passes on to the condenser where it is liquified and from there to the cooling unit in the regular manner.

The base of the oil separator is provided with a float and as soon as a small quantity of oil has collected, the float valve opens and permits the oil to be returned directly to the crankcase of the compressor.

Drawing and Table Giving Dimensions and Pipe Sizes

(Models 2, 3, 4, and 5 on the left; model 1 on the right.)



the condensing unit and not by the size or number of Temprite units which may connect to it. Table 1 gives the dimensions of the five models of oil separators furnished by Temprite, together with the maximum horse-power condensing unit on which each separator may be used. Never use a smaller separator than given in table.

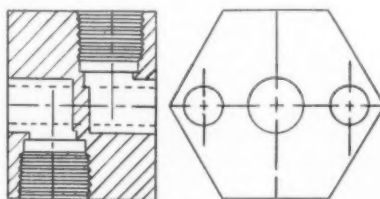
The oil separator is connected in the discharge line between the compressor and the condenser. Our recommended way to accomplish this is to use the special adaptor block which is furnished by Temprite. The use of this block eliminates cutting the discharge line and the loss of the refrigerant charge.

The adaptor block and oil separator should be installed according to the following instructions:

Close the discharge service valve, thus retaining the refrigerant charge in the condenser. Remove the discharge valve from the compressor without disconnecting the discharge line. Install the adaptor block between the discharge service valve pad and the compressor head using the gaskets and longer bolts which are furnished with the adaptor block.

The adaptor block, having previously been provided with fittings, is then connected to the separator with cop-

Adaptor



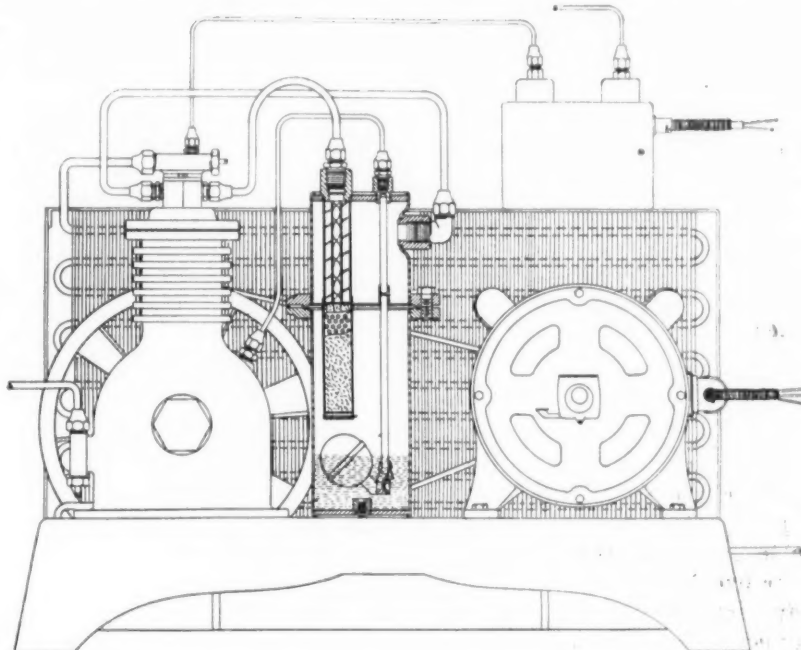
Adaptor fitting for discharge valve assembly.

per tubing as short as conveniently possible and of the same size as is used in the discharge line of the condenser.

The separator must be connected so that the gas enters at the port marked "IN." The separator must be installed vertically and rigidly attached to the condensing unit frame.

Then 1/4-inch copper tube is connected from the oil return port of the separator to the crankcase. In most condensing units, an outlet is provided in the crankcase.

Installation with Methyl or Freon Unit



Phantom view of the oil separator installed on a condensing unit, showing parts of the separator and how it operates, and the connections properly made to discharge service valve assembly.

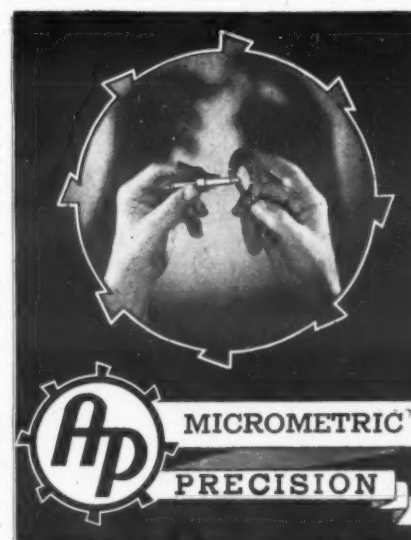
Canadian Drug Chain Buys G-E's for Vaccines

MONTREAL, Canada—Cape's Reliable Drug Stores have installed a VS-47 General Electric Flatop in each of its five local stores for the purpose of maintaining controlled preservation conditions for various vaccines, sera, and antitoxins.

Vaccines which must be maintained in a frozen state are kept in the chiller tray of the Flatops, while those needing a temperature of not more than 40° or 45° F. are stored in special metal containers placed in the cabinet.

Sale of the five Flatop units was made by the Montreal district office of Canadian General Electric Co., through the efforts of F. P. Hudon. The refrigerators were purchased from Union Electric Co., a wholesaler operating under Canadian General Electric Co.

The machines are prominently displayed in each store, and the story of the contents stressing the importance of proper temperature is printed on the doors. Mr. Cape and Mr. Cohen, executives of the drug chain, declare that vaccine sales have increased appreciably since adoption of this new merchandising method.



Controls . . .

Every Control, of whatever type, must meet a rigid code of precision standards before it can find its way into service.

Automatic Products Company
2450 North Thirty-Second Street
MILWAUKEE - WISCONSIN

WOLVERINE COPPER TUBING

A special bright annealing process makes Wolverine Refrigeration Tubing unusually soft. It is readily bent, cut, and flared. Its dense, homogeneous structure, clean bright interior and perfect dehydration assure a lasting installation. Get it AT YOUR JOBBERS.



Solder Sealed

WOLVERINE TUBE CO.

1411 CENTRAL AVENUE

DETROIT, MICHIGAN

EXTRA DRY ESOTOO

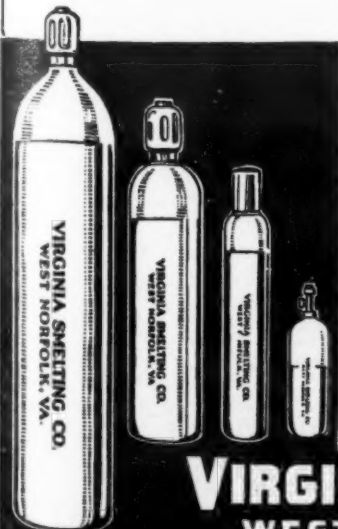
The Sign of the . . . Perfect Refrigerant

It took years of painstaking research and study to produce this fine refrigerant. Every shipment is tested and re-tested to insure its absolute purity and freedom from moisture. That's how Extra Dry ESOTOO, and its companion refrigerant V-METH-L, maintain their reputations for high quality wherever the comfort of automatic refrigeration is enjoyed.

Extra Dry ESOTOO (liquid sulphur dioxide) and V-METH-L (Virginia methyl chloride) are shipped from 72 distributing points in this country and abroad.

For information or advice on any problem of refrigeration installation or servicing, write to F. A. Eustis, Sec., 131 State Street, Boston, Mass.

VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA



AIR CONDITIONING AND REFRIGERATION NEWS

Established 1926, Registered U. S. Patent Office as Electric Refrigeration News.

Published Every Wednesday by
BUSINESS NEWS PUBLISHING CO.
5229 Cass Ave., Detroit, Mich.
Telephone Columbia 4242.
Cable Address: Cockrell-Detroit

Subscription Rates
U. S. and Possessions, Canada, and all countries in the Pan-American Postal Union: \$3.00 per year; 2 years for \$5.00. All other countries: \$5.00 per year. These rates will be increased on March 1, 1937.
Notice: Please do not pay money to strangers claiming to represent this paper. We employ no subscription solicitors. Send orders and remittances by mail.

F. M. COCKRELL, Publisher

GEORGE F. TAUBENECK, Editor
PHIL B. REDEKER, Managing Editor
THEODORE T. QUINN, Assistant Editor
WINIFRED HUGHES, Assistant Editor
K. M. NEWCUM and F. O. JORDAN, Contributing Editors

R. T. CARRITHERS, Advertising Mgr.
HELEN K. GILMORE, Asst. Adv. Mgr.

JOHN R. ADAMS, Business Manager
ROBERT P. NIXON, Asst. Business Mgr.
JEAN H. ADAMS, Subscription Manager
LOLA E. DEW, Circulation Manager
WINFRED MERSON, Spec. Representative

New York Representative
JOHN B. GALLAGHER CO., INC.,
11 W. 42nd St., New York, N. Y.

Member, Audit Bureau of Circulations
Member, Associated Business Papers

VOL. 20, No. 4, SERIAL NO. 410

JANUARY 27, 1937

Copyright, 1937, Business News Pub. Co.

Taking Advantage Of a Trend

A DEPARTMENT STORE is a marvelous contrivance. It is an extremely complex institution, compounded of canny buyers, creative display artists, clever advertisers, grim accountants, alert merchandisers, shrewd executives, and a vast army of specialists and skilled labor.

When they get together in a convention of their great association, the National Retail Dry Goods Association, they divide and subdivide into a staggering number of groups to consider specialized problems. Yet throughout the entire five days of sessions in their midwinter convention in New York City last week there ran the thread of a great promise: Money is to be made in Home Furnishings in 1937.

In all the divisions the spotlight was on electric and gas appliances, modernization devices, anything and everything to make the home brighter, more efficient, and more attractive. Instalment purchases claimed the attention of the credit men; methods of costing individual appliances concerned the accountants; how to tie in with the movement toward home refurbishing occupied the thoughts and discussions of buyers in every department; and how to divert to department stores a maximum amount of the home modernization business which they all seem to feel is coming demanded the best thinking and planning of the promotion experts.

It was distinctly a Home Modernization convention.

Department store executives admitted that they are just discovering the fact that the kitchen is a place of primary importance in a woman's mind. Of first interest to men, their surveys disclosed, is the basement. Hence they're all turning their thoughts toward kitchen appliances, complete kitchen units, and . . . air conditioning!

Just how department stores are going to get into the air-conditioning business they themselves don't know yet. At present it seems too involved with insulating and duct-work and estimating for them to

find a place in the scheme. But they are thinking about air conditioning, and don't want to get left out in the cold when the business gets really good.

In all its ramifications the building industry is said to be the largest in the nation; it is also the most archaic. Department store executives, in feeling their way toward profitable connections with the builders, are hoping that they can introduce a few modern notes into construction.

Their prognosticators tell them that while the automobile business has been the largest single industry during the last two decades, home building will occupy top position within the next 20 years. Lagging behind all other industries in this respect, home construction has not yet entered into the standardization-mass production-wide distribution stage. Department stores, presuming it logical that such evolution of the building industry will soon occur, are getting set to give it a few well-timed pushes.

A great deal of thinking in this direction is also being done by other groups. Steel manufacturers, lumbermen's associations, appliance manufacturers, building supplies manufacturers, and the government are all convoluting their collective brains to put the construction of homes on a line production basis.

It is pointed out that standardization need not mean identical homes. (That speculative building by old-fashioned methods results in identical homes anyway may be discerned by riding about the residential streets of any fair-sized city.) Standardized units may be prefabricated so that they can be fitted together on the spot to meet whatever needs the buyer stipulates. Just as one buys a sport convertible or a conservative sedan—both made of standardized parts—so one should be able to fashion, from standard units, the kind of home one fancies.

It is not only because they want to get on the bandwagon of what they believe is a coming boom in home building that the department stores are so anxious to promote the modernization of home construction. They realize that standardization, prefabrication, and specialty selling will all work toward considerably reduced prices for new homes.

That means, in turn, that home owners will have more money to spend for appliances and furnishings, things which the department store sells already.

That so great a collection of merchandising brains as the constituency of the N.R.D.G.A. foresees home construction and home furnishing as the coming commercial opportunity of the next two decades is a development which should make every reader of AIR CONDITIONING AND REFRIGERATION NEWS glad that he's in on the ground floor, as well as stir him to prepare to get his share of the business.

When the result of intensive consumer research upon the part of department store executives reveals the fact that the chief interest of women is the kitchen, and of men the basement, it is time for every appliance dealer to stop, look, and listen.

He is all set with his kitchen products, and he knows how to sell them! But if he is not already in the air-conditioning business, it would appear that the time for hesitation has passed.

— LETTERS —

Harvey Lindsay Still Wants to Know

Dry-Zero Corp.
Insulation Products
Merchandise Mart, Chicago, Ill.

Editor:

Nobody has stepped forward to satisfy my curiosity regarding the tests to be made in connection with the government's purchase of 16,000 refrigerators for 34 Federal housing projects.

You will remember I wrote in November. At that time you expressed a similar curiosity and suggested that somebody in Washington or the manufacturer explain the merits of the method. If "somebody" has done this, I have missed seeing it.

You will recall that the bids were based on the price of the refrigerators plus the expense of operation over a period of 10 years—the manufacturer guaranteeing the cost of operation and agreeing to pay a penalty if the kwh. consumption exceeded the guarantee.

This is an excellent idea, except that so far no one has come forward to explain how the government's tests are to be conducted, or how they are to determine if the refrigerators are functioning within the kwh. guarantee after five or six or even 10 years.

The particular point is important because, as you know, many household refrigerators use an increasing amount of current with each year of use. The size of this increase depends largely upon the type of insulation used. In some cases the increase is negligible while in other cases the consumption of electricity may be doubled in a few years' time, the difference depending upon what water vapor does to the insulation.

Can we again urge "somebody" to step forward with some information?

HARVEY B. LINDSAY, President.

McGaughey Wants Travel Series in Book Form

Kelvinator Corp.
Detroit, Mich.

Jan. 12, 1937.

Editor:

I have read with a great deal of interest your articles concerning your around the world trip in the interest of the refrigeration business.

I have, however, one suggestion to make and that is that you publish the complete series of articles in book form. I feel sure that you would find quite a market for such a book.

A great many of us in the business have so little time each week to read these rather comprehensive articles, but I feel sure were they in book form we would find time to read them. Then too, were they in book form they would constitute quite a treatise on the refrigeration industry as applied to foreign fields.

If you should decide to print such a book you may consider this as my order for the original copy.

H. M. MCGAUGHEY,
Assistant Sales Manager,
Commercial Air Conditioning.

Answer: See below.

He Also Wants the Book

George G. Kahn
5325 Montgomery Ave.
Philadelphia, Pa.

Editor:

Enclosed find check for subscription to REFRIGERATION NEWS. Will the \$5 cover a two year's subscription? If not please let me know and bill me for the balance.

Up until a few months ago I had received the News regularly for the past five years. I must admit that during the last few months I felt like the American Traveler in some far off land who hasn't seen a hometown newspaper in months.

Could you send me all of the December issues? I would be interested in having a complete folio of all the articles that George Taubeneck wrote on his trip around the world. Please let me know how much it would cost to get complete works.

I met George Taubeneck on the January, 1934, Toppers trip when I was with Judson C. Burns. From 1930 to '35 I was with the Burns organization. I was a Topper for four years, 1931-1935. From 1935 up until the present time I have managed the Westinghouse agency for Jos. Freegood in West Philadelphia.

I am starting a new position as wholesale man for the Borstien Electric Co. Borstiens are Westinghouse distributor for Camden and the southern part of New Jersey. They also distribute the Williams Oil-O-Matic burner. Looking forward to receiving the News for a long time in the future.

GEORGE G. KAHN.

Answer: We regret that we do not have in stock a complete file of back issues of the News containing George Taubeneck's stories about his trip around the world.

However, we are planning to pub-

lish the entire story with many additional pictures in book form. We will be glad to keep your name on file and let you have further information regarding this book as soon as plans for it are more definite.

'With Considerable Forbearance'

H. R. Van Deventer
Patent Attorney
342 Madison Ave., New York
Jan. 21, 1937

Editor:

Apropos the various letters you get from the French such as the C. S. Moore letter in the Jan. 13 issue, just go ahead and stick to your guns for everybody who has been in France thinks that you have not only told the truth but you told it mildly and with considerable forbearance.

H. R. VAN DEVENTER

Merchandising Small Appliances

National Electrical Manufacturers Association
155 East 44th St., New York

Editor:

I have read with considerable interest your editorial—"Small Appliances in Spotlight"—in the Dec. 30th issue of the News.

It is gratifying to see important people (no sarcasm) like REFRIGERATION NEWS recognize small appliances. Apropos of your editorial, I recently sat in a dealer meeting where one of the largest successful appliance dealers in one of the outlying sections of New York told how he used small appliances to sell major appliances. His biggest problem was getting into the prospect's home, and he found that it was a comparatively easy matter to sell small appliances where they were properly displayed and well merchandised. He took particular pains to get the purchaser's name and address, and used this as an excuse to call back. According to his statement, many of these calls resulted in the sale of major appliances. He had established confidence with the purchaser, and it was an easy matter to get into the home.

This small appliance business is like sugar in the grocery store, and has almost come to be accepted as something that people are going to buy, regardless. But it is small in name only—because the best estimates that we can get indicate that the actual volume runs somewhere between fifty and sixty million dollars, which is a lot of anybody's money.

BRUCE A. FLEMING,
Executive Secretary,
Domestic Appliance Section.

Specifications Book Not to Be Revised This Year

H. S. Myers
Machine Shop and Garage
316 Main Street
Falmouth, Kentucky

Editor:

Please advise when the next edition of REFRIGERATION AND AIR CONDITIONING SPECIFICATIONS will be published and if this or any other of your books on refrigeration will be obtainable in loose-leaf form for the addition of new data as it becomes available.

H. S. MEYERS.

Answer: It does not appear that it will be feasible for us to revise the 1936 Specifications book this year. It involves a tremendous amount of detail work and the schedule of new books already announced for 1937 will keep our staff and shop busy indeed.

We are, however, considering the possibility of issuing a loose leaf specifications service so that a few pages at a time may be produced and distributed. Of course, such a service will be more expensive than a bound book.

Up-to-the-Minute News

636 Laurel Ave., St. Paul, Minn.

Editor:

Just to notify you that I've changed residence and would like you to send your publication here.

Any man in or interested in the refrigeration-air conditioning business shouldn't be without your up-to-the-minute News.

BEN MORRIS.

Need a Salesmanager In Australia?

Stockton Dry Goods Co.
Main at American, Stockton, Calif.
Jan. 18, 1937.

Editor:

The writer may be a bit late in congratulating you on your paper "The Development of the American Household Refrigeration Industry." However, if the saying "Better Late than Never" still holds good then allow me to use this phrase.

I am contemplating a trip to Australia just to look around whether I can make a business connection in this line with any successful firm there. I know that you are more or less acquainted with that part of the country and in a position to guide me along these lines. Please do.

I came here from New York City to accept a position with this firm, the largest department store in this city, organized various departments such as refrigeration, radio, washing machines, vacuum cleaners, and ironers. They are all successful departments.

I am very anxious to make this trip because I have always wanted to be in Australia and possibly make my home there. Do you think that I will find any difficulty in finding a connection when I arrive there, or can you suggest how I may try to contact some one in the United States to make some kind of a connection, in the sales capacity.

LEON ABRAMS.

A Jobbing Firm Is Organized in Hawaii

Refrigeration Service & Supply Co.
850 South Beretania St.
Honolulu, T. H.

Service on All Makes of Machines
Commercial and Domestic Equipment
Wagner Fractional Horsepower Motors
Refrigeration Parts and Supplies
Brass Fittings and Copper Tubing
Dayton V-Belts

Editor:

Please find enclosed the catalog mailing service form which you so kindly sent us.

We wish to thank you for this exceptional service which you are rendering the service trade. Also please find enclosed our check in the amount of three dollars (\$3) covering renewal of our subscription to AIR CONDITIONING AND REFRIGERATION NEWS.

Referring to the enclosed catalog service form, I am enclosing in addition a copy of the writer's personal qualifications.

Refrigeration Service & Supply Co. was started by the writer in January, 1935, taking over the service and parts stock from the former Kelvinator distributor in Honolulu. It was our idea to furnish parts and supplies to other service men and dealers from the very beginning, and that phase of the business has increased month by month until now we do a fair percentage of the parts jobbing business in Honolulu. We are also the largest independent service organization in the territory, servicing all makes of refrigeration equipment.

Our jobbing business has reached the point where it is necessary for us to divorce it from the retail service organization. Accordingly, we have set up a company to be known as Refrigeration Equipment Co. to carry on the jobbing activities. We are applying for a membership in the National Refrigeration Jobbers Association under that name.

H. Z. CALVIN.

Avidity in Singapore

The Gramophone Co., Ltd.
147 Killiney Rd., Singapore
Dec. 7, 1936.

Editor:

I hope you arrived back in America feeling very fit after your long tour and that you didn't lose much weight as the result of your journey in these hot and humid tropical climates.

The News is read with avidity in this office and there is very little of it that does not interest me.

Our agents have done fairly well during 1936 and I am optimistic for the coming year. There are no governmental restrictions whatsoever against imports of refrigerators into the Straits Settlements and Federated Malay States. If anything interesting happens, which may be suitable for publication in the News, I will not fail to let you know.

T. G. CAIN.

Timely Hints

Newcomer
Radio & Electric
Refrigeration
Wakeeney, Kansas

Gentlemen:

We are enclosing our check for the amount of three dollars covering our subscription for an additional year.

We would like to have our name placed on your mailing list to receive trade lists and catalogs. Please reserve for us a copy of the Red Book.

We feel that AIR CONDITIONING AND REFRIGERATION NEWS has played a great part in our successful merchandising and service of both air conditioning and refrigeration. Its pages always contain a wealth of timely hints that if proper advantage is taken of them they can be turned into cash.

We feel tied a little closer to the industry as a whole by reason of our subscription to the News.

E. J. NEWCOMER, Mgt.

Enclosed please find money order to cover my renewal for another year, also a copy of AIR CONDITIONING MADE EASY as soon as same is off the press.

Incidentally, I think the AIR CONDITIONING AND REFRIGERATION NEWS is certainly a wonderful magazine and I assure you I have enjoyed it to the fullest extent this past year.—G. Jurkat, 909 Park Ave., Hoboken, N. J.

To keep up with the industry and grow, I must have AIR CONDITIONING AND REFRIGERATION NEWS weekly. Kindly put me on mailing list as well as Independent service list.—Ernest E. Condon, Prop., Flushing Refrigeration Co.

Cashwell Opens Dealership In Greensboro, N. C.

GREENSBORO, N. C.—Dave Cashwell, for the past two years manager of the home appliance department of the Myers department store, has opened the Cashwell Electric Co. at 110 S. Green St. here.

Mr. Cashwell, formerly one of Carolina Power & Light Co.'s leading salesmen, has been active in the home appliance field for several years.

Cashwell Electric Co. will handle Norge appliances and Zenith radios, according to Southern Bearings & Parts Co., Charlotte, N. C., distributor for these two lines.

C.I.T. Establishes Office In Morristown, N. J.

MORRISTOWN, N. J.—Commercial Investment Trust Corp., in order to give localized sales financing service

to dealers and purchasers in this territory, opened an office here Jan. 20.

K. R. Manville, from C.I.T.'s Perth Amboy office, is in charge of the new branch. C. F. Gilbert, former local representative of C.I.T.'s Newark office, will be associated with Mr. Manville.

The new office will serve Morris, Hunterdon, and Warren counties.

Shapiro's Leonard Showing Yields 150% More Orders

NEWBURGH, N. Y.—Shapiro Sporting Goods Co., local Leonard distributor, sold 150% more refrigerators during the first two days of its recent showing than during the same period of last year's record showing, according to Harold Gabrilove of the company's sales promotion department.

Plans for merchandising and promotion of Leonard refrigerators were outlined to visiting dealers by Hyman Shapiro, owner of the company; by Mr. Gabrilove; Sam Rosenblum, sales manager; and James Murtaugh, refrigeration sales manager.

Scull Advises Credit Managers to Build Adequate Reserves against Future Losses

NEW YORK CITY—In liberalizing their credit sales policies to meet consumer demands, stores should remember not to extend credit or terms beyond those of others in their own customer class, E. H. Scull, of the Scull Co., New York City, told the credit management division of the Controllers' Congress of National Retail Dry Goods Association last week.

Credit as a volume and profit producing instrument for retail stores has passed the blossoming stage, Mr. Scull reminded, and stores who are to pick its fruits must act in accordance with their position before it is too late.

"The lengthening of terms, the reduction of down payments and the extension of credit on soft lines of merchandise has disturbed the equilibrium and jolted the rhythm of business. Credit is a very fragile commodity," Mr. Scull said.

"To obtain some concrete factual data on the increase in sales and accounts receivable, I prepared and mailed a questionnaire to a number of my clients.

"There were 86 answers included, covering a total volume for 1936 of \$211,563,565. There were two stores included that were typical, but whose volume was between 30 and 40 millions, so the average volume is high. However, the large majority of the stores had volumes between \$300,000 and \$3,000,000.

"Only a few stores were able to furnish data as to the amount of sales or account investment on short term instalments. Some combined this class of accounts with their regular 30-day, and others with their long term instalments. The same was true for lay-a-way sales and accounts.

"The startling thing about these figures is the increase of 38.4% on instalment sales, compared with 14.3% for the stores as a whole. Also the fact that the instalment accounts increased 42.4%, or at an even faster rate than sales, and it must be remembered that the instalment figures used for most of the stores do not include any short term accounts.

"In 1935, instalment sales represented 10.2% of the total volume. In 1936 they were 12.4%. In 1935, the investment in instalment accounts represented 35.6% of the total accounts, whereas in 1936 it was 41.1%.

"These statistics indicate in no uncertain manner the trend toward credit expansion. Of course I appreciate that one of the basic causes of this condition was the large increase in sales in 1935 and 1936 of the class of merchandise usually sold on terms.

"In the drive for the consumer's pay check, not only were longer and longer terms extended, lower and lower down payments accepted, but credit has been granted on lines of merchandise never before considered a good risk.

"Many schemes were devised—letters of credit, limited charge, budget, stamp accounts, coupon books, and various other plans were originated. The condition has naturally resulted in many stores being forced to sell both terms and merchandise, that formerly concentrated their efforts wholly upon merchandise. This made necessary a new advertising technique, as well as required some changes in merchandising methods.

"For several years previous to the depression there was an upward surge of instalment buying, and dire predictions were made of its ultimate effect upon the business structure. The actual losses experienced because of bad debts and repossession were not nearly so high as had been forecasted, and this fact may be a basis for judging what will happen in the future when we have passed the crest of the present buying wave.

"It is probable that part of the decline experienced in the depression was due to the fact that buying power had previously been consumed through instalment sales, and no doubt the large debts incurred through this kind of buying likewise delayed recovery.

"However, we cannot do otherwise than face the fact that consumers want credit and regardless of the eventual consequences, the stores that do not supply it fail to get the business if they are dealing with a credit desiring class.

"Because the lines of merchandise sold on instalments have shown sales increases in the last couple of years at a much higher rate than other kinds of merchandise, because we may be headed for a real inflationary period, and because there may actually be an element of obsolescence in these accounts at a later date, maybe three or four years hence, it seems to me reserves for losses should include provisions to cover these extraordinary contingencies.

"The recent experience of almost all stores has been satisfactory on deferred payment accounts. Even on the limited charge type of account on soft lines I have yet to find a single store dissatisfied with its collection experience, although some are unhappy because the plan did not produce for them as much business as they anticipated.

"Failure to deal adequately with this entire problem of credit expansion and to find the right answer for your store, may be a far more serious matter than you at the moment contemplate. If you are too rigid in your requirements, it may mean the loss of immediate business to competition as well as the possible loss of the customers' future purchases. On the other hand, if you are too liberal, it may mean the loss of substantial capital.

"The following recommendations are sound, providing your store has a class of customers to whom the extension of terms has an appeal:

"a. Extend credit and terms of payment on just as liberal a basis as those stores you consider your competitors. Your terms and liberality of credit should be equal to, but not exceed, the terms of those stores who are trading with your class of customers.

"b. Extend limited credit on soft lines, if yours is the class of store with customers to whom this plan will appeal.

"However, before you liberalize your present credit policy be sure:

"1. That you have a credit department that knows how to select the proper risks.

"2. That both your credit and collection departments are fully aware of the necessity of educating your customers not only to their responsibility to the store but the requirements that their payments be made on time, especially in the early stages of the account.

"3. That your collection department is organized and has ample time to follow up vigorously on payments as they become due.

"4. That you keep after your delinquents and age your accounts not less than once every three months.

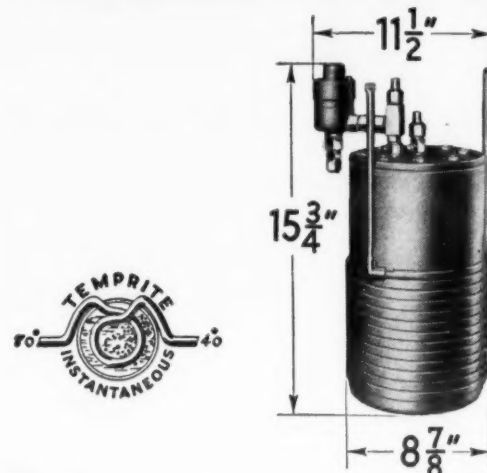
"5. That you provide ample reserves against loss. By ample I do not mean reserves sufficient to cover present day losses, but allowances that will anticipate substantially larger losses in the event of another depression.

"6. That you charge interest on all delinquent limited soft line accounts and if you are not already doing so, consider charging interest on past due thirty day accounts.

"7. Segregate your various types of credit accounts, such as C.O.D., lay-

a-way, major appliance, home furnishing and apparel long term, and soft line short term accounts, so that you will know periodically the sales produced, as well as the investment in and turnover of each class of accounts."

TEMPRITE is small and compact



THIS Temprite cooler (25-B-2-W) handles two kinds of beer at the same time and in addition, provides (through the coil on the outside) ample quantities of properly cooled water at the bar.

The Temprite is the smallest, most compact self-contained beverage cooler available.

Write for illustrated folder B1

TEMPRITE PRODUCTS CORPORATION

1349 East Milwaukee Ave., Detroit, Michigan

ORIGINATORS OF INSTANTANEOUS LIQUID COOLING DEVICES

Important To Anyone Interested in AIR CONDITIONING

With the growing interest in air conditioning and with the wider use of compressors for cooling purposes, the demand for satisfactory compressor motors has greatly increased.

Motors to meet this demand are judged largely upon the basis of their efficiency, dependability,

quietness and appearance.

The Wagner line of compressor motors conforms to manufacturers' demands for auxiliary equipment that is ideally suited for driving compressors.

A few of their many features are:

FRAME is all steel — strong, rigid, unbreakable. It is formed from a flat sheet, rolled to form a cylinder, the two ends welded together, and with feet of structural steel securely welded in place.

STEEL-BACKED BABBITT-LINED BEARINGS are accurately machined to secure bearing clearances small enough to avoid any possibility of excessive play and at the same time large enough to provide a liberal oil film between shaft and bearing.

ENDPLATE is cast from gray iron, amply strong and rigid to enable it to stand up even under exceptionally severe conditions.

ROTOR of Wagner squirrel-cage motor is of the pressure cast-aluminum type, with bars, end-rings and blowers cast integrally, producing a one-piece rotor which is practically indestructible. Skewed closed rotor slots minimize magnetic pulsations across the air gap and produce uniform starting torque at different positions of the rotor.

Wagner builds a complete line of motors especially designed for compressors. They are available in any standard horsepower, speed and voltage rating; in many mechanical variations, such as,

resilient-mounting, double-shaft extension, rigid-mounting, etc. Write today for literature on Wagner air-conditioning motors.

Wagner Electric Corporation

6400 Plymouth Avenue, Saint Louis, U.S.A.

MOTORS • TRANSFORMERS • FANS • BRAKES

McCord Refrigeration and Air Conditioning PRODUCTS

- CONDENSERS
- COMMERCIAL EVAPORATORS
- DOMESTIC EVAPORATORS
- COMFORT COOLERS
- MARKET COOLERS
- AIR CONDITIONING SURFACE
- UNIT HEATERS
- BLAST HEATING SURFACE
- CATALOGS ON REQUEST

McCORD RADIATOR & MFG. CO. DETROIT, MICH.

General Controls Establishes Office in New York City

NEW YORK CITY—General Controls Co. has opened a new branch office at 267 Fifth Ave. here, according to an announcement made by A. W. Ray, sales manager.

The Manhattan office will be under the management of H. G. Wasserlein, and a complete stock of temperature, pressure, and flow controls will be kept on hand.

This is the fifth office maintained by General Controls, others being in Cleveland, Kansas City, San Francisco and Los Angeles.

Heating Is Mexico's Primary Need, Consul States

MEXICO CITY, Mexico—Heating rather than cooling should be the principal consideration in air-conditioning equipment designed for use in this country, says U.S. Consul General Thomas T. Bowman, and whatever market exists for air conditioning lies in the larger cities such as Mexico City, Guadalajara, Monterrey, and Puebla.

Days, although warm, are never hot here, the consul general explains, but the nights often become quite cool

and brisk. This equitable climate minimizes the need for air-conditioning equipment, and whatever demand would be found for it would be for the purpose of warming the house and offices, he believes, rather than for cooling.

As far as it has been possible to ascertain, no portable air-conditioning units have been sold in this market, Mr. Bowman states. There are, however, two large American manufacturers of air-conditioning equipment represented here. These factory representatives have sold some large installations to theaters, stores, and other buildings, but these two com-

panies are the only ones known to be participating in the air-conditioning field here.

Frick Conditions 2 Dining Rooms in Auburn Cafe

AUBURN, Ala.—Two dining rooms of the Tiger Cafe here were recently air conditioned by Smith & Berry, Frick Co.'s Birmingham distributor. A 15-hp. refrigerating unit with overhead drive is connected to Trane unit coolers. The system makes 600 lbs. of ice per day.

- AIR CONDITIONING SURVEYS -

Published on this and the following two pages is the beginning of a survey giving complete data on the air-conditioning installations that have been made to date in some cities of this country. Information published gives

name and type of establishment where installation was made, size of the installation, approximate date when installation was made, and name of equipment installed. Boston and Akron, Ohio, are covered this week.

Where Air Conditioning Has Been Installed In the Boston Metropolitan Area

Restaurants

Name and Address	Installation	Hp.	Installed
Ambassador Restaurant, 41 Winter St.	Frick	30	1935
Blue Hill Cafe, Blue Hill Ave.	York	18	1936
Chamber of Commerce (Cafeteria), 80 Federal St.	Buerkel & Co.	20	1932
Crimson Grill, 1100 Boylston St.	Lipman	11	1936
Dinty Moore's, Washington St.	Chrysler	25	1936
Dorothy Muriel's, Summer St.	Frigidaire	6½	1934
Dorothy Muriel's, 127 Tremont St.	Frigidaire	23	1934
Eichel's Spa, 1 Winter Place	Westinghouse	10	1936
Eichel's Spa, 38 Cornhill	Westinghouse	7½	1936
English Tea Room, Newbury St.	Frigidaire	3	1933
Essex Food Shop, Essex St.	Carrier	15	1935
The Georgian, Inc., 525 Huntington Ave.	Braeman-Dow	25	1932
Harvard Gardens, Harvard Ave., Brighton	Westinghouse	45	1935
Hofbrau Restaurant, Tremont St.	Fairbanks-Morse	17	1936
High Hat, Columbus Ave.	Automatic Ref. Co.	20	1935
H. P. Hood, Hawley St.	York	55	1935
H. P. Hood, Hawley St.	York	17½	1936
Horace Ford, 19 Thompson St., Winchester	Frigidaire	3	1936
Hunts Restaurant, 1370-A Beacon St., Brookline	C. J. Cox	10	1936
Huyler's Restaurant, Tremont St.	York	12	1934
Levaggi's, Massachusetts Ave.	General Electric	21½	1935
Levaggi's, Hayward Place	General Electric	20	1936
Litchfield's Grill	Westinghouse	10	1935
Club Mayfair, Broadway	York	20	1933
Mayflower Doughnut Shop, Tremont St.	Ilg	7	1933
Nature Food Centers, 72 Tremont St.	Kelvinator	15	1936
New Adams House Restaurant, 533 Washington St.	Correaire Corp.	18½	1936
Old Oyster House, Union St.	M. J. Flaherty	10	1936
Patten's Restaurant, Court St.	Frigidaire	30	1933
Penthouse, Stuart St.	Frigidaire	3	1934
Rosoff & Co., 97 Summer St.	Westinghouse	22	1936
Schrafft's, West St.	Frick	130	1934
Schrafft's Restaurant, Boylston St.	Automatic Ref. Co.	60	1933
Schrafft's, 11 Summer St.	Automatic Ref. Co.	32	1936
Seville Restaurant, Boylston St.	Universal-Trane	33	1934
St. Clair's, 1366 Beacon St., Brookline	Frigidaire	11½	1934
St. Clair's, Federal St.	Automatic Ref. Co.	5	1935
Sharaf's, Stuart St.	Automatic Ref. Co.	16½	1936
South Station	Carrier	54	1935
Steuben Restaurant, Boylston St.	York	47½	1934
Theatrical Club, Tremont St.	Frigidaire	3	1933
Tremont Plaza, 179 Tremont St.	York	65	1934
Thompson's Spa, 239 Washington St.	Frigidaire	7	1936
Walter's Restaurant, Beacon St., Brookline	Frigidaire	7½	1933
Waldorf Restaurant, 121 Federal St.	Automatic Ref. Co.	16½	1936
Waldorf System, 123 Causeway St.	Automatic Ref. Co.	20	1936
Waldorf Restaurant, 182 Tremont St.	Automatic Ref. Co.	17	1936
Ye Olde Oyster House, Stuart St.	York	7½	1936
Waldorf Restau., 304 Moody St., Waltham	Automatic Ref. Co.	18	1936

Banks

Brookline Trust Co., Beacon St., Brookline	General Electric	5	1934
Brookline Trust Co., Beacon St., Brookline	General Electric	11	1935
Five Cents Savings, School St.	Boston Ice Co.	7½	1934
Natick Cooperative Bank, Natick	General Electric	4	1935
Old Colony Trust Co., Court St.	Frigidaire	10	1935
Second National Bank, Federal & Franklin	Westinghouse	7½	1934
Webster Atlas Bank	York	3½	1935

The ANSUL Twins

PERFECTION OF PERFORMANCE

ANSUL CHEMICAL COMPANY
MARINETTE » » » » WISCONSIN

Hot Air Distribution Systems in Commercial Heating Plants

SECTION NO. 7 Heating (Cont.)

BY F. O. JORDAN

Commercial Forced Air Heating Systems

As in the domestic system, there are two systems of air distribution which are generally used in the case of the large system, namely the plenum chamber system and the trunk system.

For the plenum system, a large plenum chamber is provided, usually consisting of a practically air-tight room which may be approximately cubical in shape, or which may be long and narrow and extend across the building so as to assist in the distribution of air.

In this plenum chamber, a slight air pressure is maintained, at very low air velocity. From this plenum chamber, ducts are run to the various rooms or air supply openings, volume dampers being provided in all such ducts.

TWO-CHAMBER SYSTEM

Often, two plenum chambers are provided, usually one above the other, one chamber being maintained approximately at room temperature or at a temperature which is not high enough to cause overheating of the heated space when full quantity of air is supplied at that temperature, and the other being maintained at a higher temperature as necessary to offset the heat losses from the space to be heated.

Each air supply duct is provided with a connection to each chamber and an automatically controlled damper opens as the other damper closes.

By this arrangement, the temperature of the air mixture to the room may be regulated as necessary to maintain a constant room temperature, yet the air volume may be held constant. With this arrangement, a constant volume of air is supplied for ventilation, regardless of the heating requirements.

The proper damper positions are regulated by a graduated acting damper motor under thermostatic control, as described below under "Automatic Controls."

PLENUM ADVANTAGES

The plenum chamber system is easy to balance and control, and tends to dampen out fan noises. However, the trunk system generally is lower in first cost, and occupies less space.

Fig. 58 shows a single-temperature plenum chamber, while Fig. 59 shows a two-temperature plenum chamber.

NOTE (Fig. 58): Cooling coils may be provided on the intake side of the fan, and system used for summer conditioning.

NOTE (Fig. 59): This system may be used also for summer conditioning. For the "trunk" system, no plenum chamber is provided, the air merely being discharged into a main distributing duct from which proper dampered branches are taken, as necessary to supply air to the space to be heated. With this system, only one general temperature of air is delivered to the room, as a two-temperature trunk system would require two complete duplicate duct systems with obvious disadvantages as to cost and space requirements.

TRUNK DISADVANTAGES

The trunk system tends to have the following disadvantages.

1. Noise: Noise which is generated by the supply fan tends to be carried throughout the duct system, while noise which is generated within one

room may be carried through the duct system to another room which is served by the same main duct.

2. Inflexibility: Since only one temperature of air is carried by this system, varying demands of various rooms and zones cannot be met as with the two-temperature plenum system. Such variations in demand must be met by shut-off dampers, which restrict the air-flow upon decreases in heat load, without respect to the ventilation requirements.

Single-Temperature Plenum Chamber

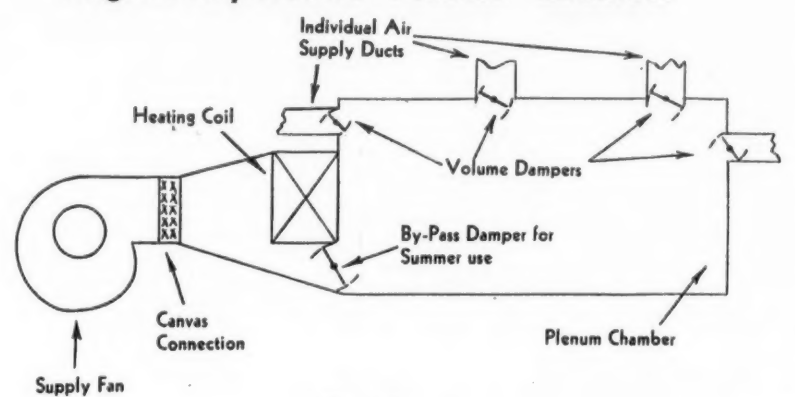


Fig. 58.

Two-Temperature Plenum Chamber

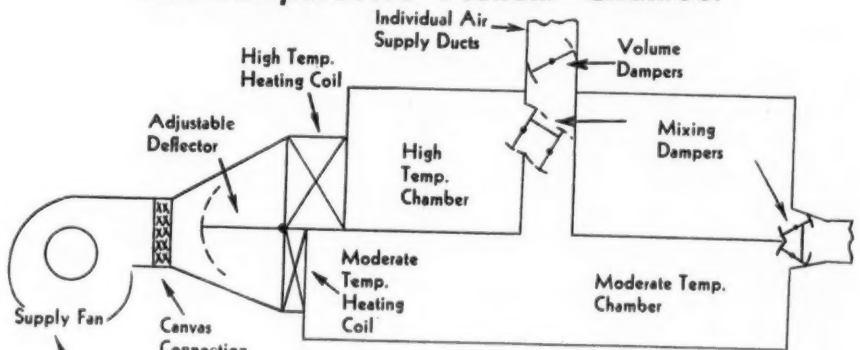


Fig. 59.

Typical Trunk System

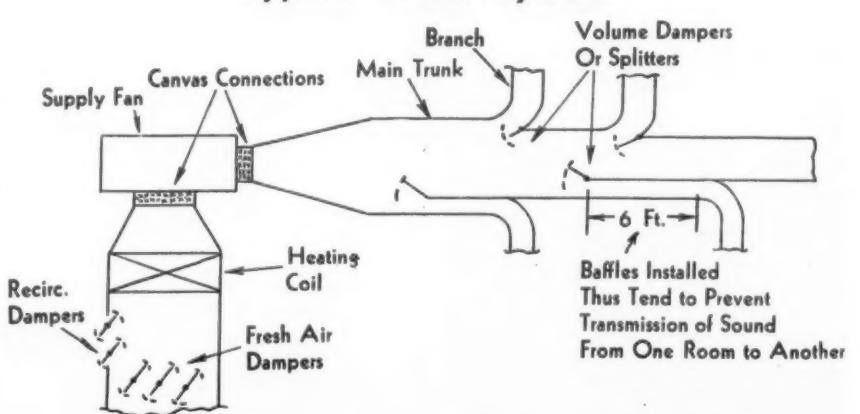


Fig. 60—Trunk or velocity system for air distribution.

TAG POCKET THERMOMETERS

Refrigeration servicemen need the accuracy and dependability of TAG Pocket Thermometers. These thermometers can be furnished in mercury or spirit-filled, with range of -30 to +120°F. or mercury filled 0 to 220°F. in 2° divisions and 6" in length. Ask for prices on these low cost, guaranteed accurate thermometers and for a copy of the TAG Catalog No. 1136-25 showing other valuable test equipment for Refrigerator Service.



C. J. TAGLIABUE MFG. CO.
Park & Nostrand Ave's., Brooklyn, N. Y.



Boston Installations (Cont.)

Stores

Name and Address	Installation	Hp. Installed
Fanny Farmer (Candy), 2 Park Square....	Westinghouse	1½ 1936
Fanny Farmer (Candy), Tremont St....	Westinghouse	2 1936
Little Nut Shoppe, 189 Summer St....	York	1 1936
Bond Clothing Store, 620 Washington St....	Carrier	40 1935
Crawford Clothing, Washington St....	York	10 1935
Howard Clothing, 605 Washington St....	York	18 1936
Hudson's (Clothing), 469 Washington St....	York	18 1936
Leeds (Clothing), Winter St....	York	20 1934
Lerner's (Clothing), Washington St....	Carrier	11 1934
Louis Clothing Store, 123 Stuart St....	Frigidaire	4 1936
Peck & Peck (Clothing), Arlington St....	Carrier	11 1936
Plotkin Bros. (Clothing), Boylston St....	York	45 1936
Joseph Plotkin (Clothing), 406 Boylston St.	General Electric	3 1936
Conrad & Co. (Dept. Store), Winter St....	Frigidaire	7 1934
Conrad's Beauty Salon, Winter St....	Frigidaire	15 1933
Wm. Filene's (Dept. Store Basement), Washington St....	Carrier	515 1935
Wm. Filene's (Dept. Store), Washington & Summer Sts....	Carrier	2,000 1934
Filene's Barber Shop, Washington St....	Universal	10 1933
Gilchrist Marble Spa, Winter St....	York	23 1936
Grover Cronin (First Floor, Dept. Store), Moody St., Waltham	York	60 1936
Grover Cronin (Dept. Store), Moody St., Waltham	York	30 1935
C. F. Hovey (Dept. Store), Summer St....	General Electric	7½ 1935
Jordan Marsh Co. (Dept. Store), Washington St....	Campbell	1½ 1933
Jordan Marsh Co. (Spanish Shop), Washington St....	York	15 1935
S. S. Kresge (Dept. Store), Washington St....	Wittenmeier	100 1934
Kresge (Addl. Equip.), Washington St....	Carrier	28 1935
Lincoln Dept. Stores, Moody St., Waltham	York	20 1935
R. H. Stearns (Dept. Store), Tremont St.	Westinghouse	17 1934
R. H. White (Dept. Store), Washington St.	Westinghouse	3 1933
Woolworths, Inc. (Dept. Store), 490 Washington St....	York	150 1936
Woolworths, Inc. (Dept. Store), 55 Summer St....	York	55 1936
Liggett's (Drug), 474 Washington St....	Carrier	35 1936
Neisner Bros. (Dept. Store), 349 Washington St....	York	125 1936
First National Food Stores, 928 Beacon St., Brookline	York	10 1934
South Boston Food Market, 464-8 Broadway, South Boston	York	35 1935
Supreme Food Market, Gallivan Blvd., Dorchester	York	26 1935
Supreme Food Market, Gallivan Blvd., Dorchester	York	17 1936
I. J. Fox (Furs), 401 Washington St....	Carrier	20 1935
I. J. Fox (Furs), Washington St....	Ingersol-Rand	105 1935
I. J. Fox (Furs), Washington St....	Ingersol-Rand	65 1935
Kakas Furrier, Newbury St....	General Electric	3½ 1935
Scott Furriers, Inc., 38 Winter St....	York	70 1934
Bell Hosiery Co., Washington St....	Westinghouse	21½ 1936
Kay Jewelry Store, Moody & Walnut Sts., Waltham	Frigidaire	6 1936
Kay Jewelry Co., Washington St....	Frigidaire	6 1933
Washington Jewelry Co., 503 Washington St.	C. J. Cox	12 1936
Washington Jewelry Co., 365 Washington St.	C. J. Cox	12 1936
C. L. Richardson (Liquors), 631 Atlantic Ave.	York	6 1936
Cox & Young (Shoes), 56 School St....	Westinghouse	2½ 1936
Emmett's Shoe Co., Washington St....	Frigidaire	3½ 1935
Florsheim Shoe Co., Washington St....	York	3½ 1936
French Shriner & Urner (Shoes), 63 Melcher St., South Boston	York	6½ 1936
Solby-Bayes Co. (Shoes), 51 West St....	Westinghouse	1½ 1936
Wilbar's Shoe Store, 123 Stuart St....	York	6 1936
Wilson Shoe Store, Washington St....	York	15 1936
Brookline Theater, Harvard Ave., Brookline	York	60 1933
Capitol Theater, 1266 Commonwealth Ave., Allston	Carrier	180 1932+
Imman Theater, Somerville	Boston Ice Co.	5 1935
Keith Boston, 614 Washington St....	Carrier	300 1932+
Keith Memorial Theater, 539 Washington St.	Carrier	430 1932+

Theaters

Loew's (State), 205 Massachusetts Ave....		440 1932+
Metropolitan, 268 Tremont St....	Wittenmeier	353 1932+
Oriental, 1601 Blue Hill Ave., Mattapan....	Carrier	190 1932+
Orpheum, 413 Washington St....		452½ 1932+
Paramount, 549 Washington St....	Carrier	235 1932+
Scollay Square Theater, 56 Scollay Sq....	B. F. Sturtevant	433 1932+
Strand, 543 Columbia Rd., Dorchester	Carrier	205 1932+
Uptown Theater, 239 Huntington Ave....	Carrier	160 1932+
Washington St. Olympia, 658 Washington St.	Carrier	185 1932+

Hospitals

Corey Hill Hospital, Summit Ave., Brookline	Cooling & A. C. Corp.	35 1936
Phillip's House, Mass. Gen. Hos., Charles St.	General Electric	½ 1936
Mass. General Hospital, Charles St....	General Electric	½ 1935

Frick Conditions Three Theaters In Houston

HOUSTON, Tex.—Three local theaters, the North Main, Tower, and Eastwood, have been air conditioned by Dixie Heating & Ventilating Co., Frick distributor in this territory.

In each of these theaters, the lounges, rest rooms, projection rooms, ushers' rooms, lobby, and manager's office are air-cooled, in addition to the main auditorium space. Seating capacity of the three theaters ranges from 1,061 to 1,109.

Cooled and dehumidified air is introduced into the theater space at the rate of 30 c.f.m. for each seat. Of this amount, 7 cu. ft. is fresh air. The remainder is recirculated. A separate exhaust system removes spent air at the auditorium ceiling line and from the rest rooms.

The air is cooled, cleaned, and properly dried by passing it through a spray-type dehumidifier, the amount of cooling and drying necessary depending upon the occupancy of the theater and the outdoor temperature and humidity. The cooling and drying is controlled by varying the temperature of the spray water, the air volumes delivered to the conditioned spaces, and the relative percentage of fresh and recirculated air.

The dehumidifiers are of a design developed by Dixie Heating and Ventilating Co., and were built to order for each installation. Dixie Heating and Ventilating also manufactured the condenser-water cooling towers, which were individually engineered to meet the conditions on each job.

Each theater is equipped with Freon-12 refrigeration systems. Machines are of the enclosed type, with two 1½ x 8-inch cylinders. These machines are driven by 100-hp. motors through V-belts.

Research Group Studies Cost of Common Cold

NEW YORK CITY—The common cold, generally most prevalent during the month of January, costs the United States more than half a billion dollars each year, according to information gathered by The Temperature Research Foundation of Kelvinator Corp.

Estimates compiled by the United States Public Health Service show that each of the nation's 42,000,000 gainfully employed workers loses an average of 2½ work days a year because of the common cold. This means an annual national loss of 90,000,000 work days. At an average wage of \$5 a day, the financial loss totals more than \$450,000,000 annually exclusive of the sufferer's doctor and medicine bills.

It is especially important that precautionary measures be taken at this time, the foundation points out, inasmuch as a cold is often a predisposing factor to more serious respiratory ailments, including pneumonia, influenza, bronchitis, sinusitis, laryngitis, pharyngitis, tonsillitis, and conjunctivitis.

Some measure of relief from this constant attack on the nation's health, and consequently upon its pocket-book, is now available through the development of modern air conditioning, the foundation explains.

"This is the age of conquering the air, and it is fitting that air conditioning should be developed at this time and take its place with other controls of temperature in safeguarding the public health," the foundation states.

"Pasteurization and refrigeration having made safe our foods, it is appropriate that air conditioning should contribute to the progress of preventive medicine, based on the newer formula that it is far better to keep well than to get well; to build up a resistance and create conditions in which we do not succumb to attack rather than to spend money, skill and suffering in repelling invasions on our health."

A study undertaken by the Public Health Service on minor respiratory diseases revealed that very few of the inhabitants of the United States escaped the common cold during the course of the year. Representative groups, queried in all parts of the country, reported that approximately 15% usually experienced one cold in the course of a year; 30%, two colds; 26%, three colds; 14%, four colds; 14% five or more colds.

Boston Installations (Cont.)

Offices

Name and Address	Installation	Hp. Installed
Aubin-Spencer Corp....	Frigidaire	1½ 1933
Walter Baylies, 70 State St....	Ilg	½ 1934
Boston Auto. Fire Alarm, 141 Milk St....	York	37½ 1936
Boston Safe Dept. & Tr., 100 Franklin St....	C. J. Cox	12 1936
Old Christian Science, Pub. House	Carrier	11 1934
Christian Science Publishing Co., Norway St.	Carrier	225 1933
Cunard Line, Boylston St....	Carrier	9½ 1936
Davenport & Co., 10 Post Office Square....	Frigidaire	½ 1936
Eastern Mass. St. Railway, Haymarket Sq.	General Electric	25½* 1936
Eastern Mass. St. Railway (Office and Waiting Room), Haymarket Square....	General Electric	19½ 1936
Edison Elec. Illum. Co., 39 Boylston St....	Westinghouse	1½ 1933
Ford Motors, Somerville	York	50 1936
Fox Film Co., Broadway	York	15 1935
General Heat & App. Co., 469 Washington	Frigidaire	5 1936
Gov. Curley's Office, State House	York	2 1936
H. P. Gurney, 75 Longwood Ave., Brookline	Frigidaire	1½ 1934
Hale & Dorr, 60 State St....	Frigidaire	½ 1936
Hayden Stone & Co., 75 Federal St....	Westinghouse	15 1933
Mr. Hayward's Office, Berkeley St....	Strang	1 1934
Hodgman Rubber Co., Framingham	Frigidaire	1½ 1933
Mr. Hosmer & Mr. Comerford, 182 Tremont	Westinghouse	5½ 1935
Hoves Bros. Co., 321 Summer St....	Automatic Ref. Co.	15 1935
Dr. T. P. Kendrick, 454 Washington St., Brookline	Westinghouse	½ 1935
William Kennedy, Summer St....	Frigidaire	½ 1935
Longwood Towers, Chapel St., Brookline..	General Electric	½ 1936
E. F. Mahady Co., 851 Boylston St....	York	6 1934
New England Tel. & Tel., Oliver St....	York	5 1934
Dr. Francis Newton, 319 Longwood Ave., Brookline	Strang	½ 1934
Reed Murdock, Somerville	General Electric	5½ 1935
A. Shapiro, 179 Lincoln St....	Frigidaire	1½ 1934
Swift & Co., Dock Square	Frigidaire	1½ 1934
United Business & Invest., 210 Newbury St.	Carrier	13 1934
United Business Service, Newbury St....	Carrier	23 1936
United Drug Co., Leon St....	Frick	10 1935
United Drug Co., Leon St....	Frick	92 1935
United Elec. Controls Co., 69 A St., S. Boston	Westinghouse	½ 1934
York Ice Machine, 200 Causeway St....	York	10 1935
Dr. Saul J. Zonn, 1259 Hyde Park Ave., Hyde Park	Frigidaire	½ 1936

Undertakers

David Fudge & Son, 100 Highland Ave., Somerville	Carrier	3½ 1935
A. A. Marshall & Sons, 1844 Massachusetts Ave., Lexington	Westinghouse	2½ 1936
Short & Williamson, 173 Brighton, Allston	Westinghouse	10 1935
Waterman's Fun. Par., 497 Commonwealth	Westinghouse	11 1936



PELCO makes and releases its own floating ice in upper compartment. Cools quickly and uniformly.

PELCO Electric Beverage-Food COOLER

Cools faster because it makes FLOATING ICE

Cools bottled beverages from room temperature to desired degree in approximately 30 minutes . . . cools every bottle to the same degree. 9 stages of cold control—the owner chooses the temperature at which PELCO operates . . . a money-maker for tap rooms, hotels, restaurants and lunch rooms—anyplace that sells food and bottled beverages is a prospect. Requires no installation . . . simply plug into any light socket.

Another Exclusive **SALES ADVANTAGE**

Complete Line—**PROFITABLE VOLUME at once!**

Just count the prospects near you! PELCO has a complete line—a size to meet every requirement. Designed and produced by a reliable concern maintaining precision standards—backed by aggressive merchandising helps.

2 units in 1! The fastest bottled beverage cooler made plus an efficient refrigerator for foods or for pre-cooling bottled goods.

Write or wire Dept. A-17 for full details.

Refrigerator Division
PORTABLE ELEVATOR MFG. CO.
 ESTABLISHED 1899
 BLOOMINGTON, ILLINOIS



Class 9100

Overload! REGULATORS

Meet Today's Requirements in Motor Protection for Commercial Refrigeration.

Ratings—1 H. P., 110-230 V. A. C.
 1/2 H. P., 115-230 V. D. C.

Here are the Facts..

- ... The overload block is fitted to standard pressure or temperature regulators, single or double bellows types
- ... the block is small—no added mounting or wiring problem
- ... all one compact unit
- ... the relay is trip free and indicating
- ... reset button provides manual "on and off"
- ... the relay is of the melting alloy type
- ... heater coils as specified and available for field changes
- ... double voltage wiring terminals
- ... heavy brown Bakelite case
- ... steel conduit flange
- ... screw driver or knob adjustment.

Manufacturers, distributors, dealers—write for bulletin information on "Complete control"—the 9100 regulator line for commercial refrigeration.

SQUARE D COMPANY
 REGULATOR DIVISION, DETROIT, MICHIGAN
 SQUARE D COMPANY, INC., LOS ANGELES, CALIFORNIA
 SQUARE D COMPANY, CANADA LTD., TORONTO, CANADA

Export Dept.—H. M. Robins Co., 120 Madison Ave., Detroit, Michigan

Boston Installations (Cont.)

Hotels

Name and Address	Installation	Hp.	Installed
Hotel Bellevue (Dining Rm.), Beacon St.	Trask Eng.	8	1936
Hotel Bradford (Restau.-Grill), Tremont St.	Carrier	18½	1934
Copley Plaza (Merry-Go-Round Bar), Copley Square	Carrier	23	1934
Copley Plaza Hotel (Grill & Bar), Copley Sq.	Frigidaire	3½	1936
Hotel Essex (Dining Room), Atlantic Ave.	Westinghouse	10½	1936
Kenmore Hotel (Dining Rm., Ballroom, Coffee Shop), Commonwealth Ave.	Kelvinator	70	1935
Manger Hotel, North Station	Carrier	15	1932
Myles Standish Hotel (Bar), Bay State Rd.	Boston Ice Co.	3	1935
Parker House (Barber Shop), School & Tremont Sts.	Ilg	5	1935
Parker House (Restaurant), School & Tremont Sts.	Ilg	15	1933
Parker House, 60 Tremont St.	York	30	1936
Parker House (Bar), School & Tremont Sts.	Ilg	5	1934
Parker House (Office), School St.	Ilg	½	1934
Hotel Puritan (Dining Rm.), Arlington St.	York	16	1934
Ritz Carlton Hotel (Bar), Arlington St.	Kelvinator	18	1934
Ritz Carlton (Beauty Shop), Arlington St.	Universal	15	1934
Somerset Hotel, (Dining Room, Ballroom, etc.), Commonwealth Ave.	Westinghouse	34	1936
Hotel Statler (Restaurant)	Frigidaire	11½	1934
Hotel Touraine (Restaurant)	York	30	1935
Victoria Hotel (Restaurant), Exeter St.	Boston Ice Co.	3	1934

Office Bldgs.

Harris Forbes, 24 Federal St.	York	225	1936
Insurance Exchange Bldg., 40 Broad St.	Fairbanks-Morse	33½	1936
Rice Bldg., 10 High St.	York	350	1936

Miscellaneous Commercial

Audition Room, WEEI, 182 Tremont St.	Westinghouse	1½	1935
Edison Auditorium, 39 Boylston St.	Frigidaire	28	1934
G. J. Esselby Co., Inc., 850 Boylston St.	General Electric	½	1936
Harvard School of Pub. Health, 55 Shattuck	B. F. Sturtevant	10	1932†
Herald-Traveler Bldg., Mason St.	B. F. Sturtevant	32	1932
Museum of Fine Arts	Frigidaire	1	1933
Shepard Broadcasting System, 651 Beacon	Westinghouse	33	1935
Y.W.C.A., Berkeley St.	York	20	1936
Miscellaneous Commercial Installations		15	....
Christian Science Church (Reading Room), Norway St.	Frigidaire	9	1936

Industrial

Buck Printing, 145 Ipswich St.	Carrier	20	1936
Colonial Tanning (Leather Concern), 207 South St.	General Electric	21	1935
Continental Baking Co., 65 East Cottage St., Roxbury	Sturtevant	5	1932†
Forbes Lithograph Co., Chelsea	Carrier	250	1935
Geo. Green (Preservation of Apples), High St., Ashland	York	13	1935
Hildreth Candy Shop (Factory), 549 Albany	York	18	1936
A. C. Lawrence (Leather), 210 South St.	Frigidaire	3	1936
Macallen Co., 16 Macallen St., South Boston	York	4	1936
Meliorpe Fruit Co., Long Wharf	York	40	1932
S. S. Pierce (Wine & Cigar Storage), Huntington Ave.	Frick	15	1935
Rust Craft Publishing Co., 1000 Huntington	Hitchins Eng. Co.	45	1936
Davies Rose Chemical Co., 22 Thayer St.	Frigidaire	27½	1936
Walter Baker & Co., Inc., 1197 Washington St., Dorchester	York	120	1936

Residential

John B. Buttrick, Monument Rd., Concord	General Electric	1½	1936
Winslow Churchill, 3 Cliff St., Arlington	Frigidaire	1½	1933
Benjamin Green, 61 Beech St., Brookline	Frigidaire	3	1935
Dr. F. H. Hall, 372 Marlboro St., Boston	Frigidaire	1½	1933
Prof. O. C. Koppen, 66 Moffat Rd., Brookline	General Electric	½	1936
H. G. Lapham, 514 Warren St., Brookline	General Electric	5	1935
H. W. Marsh, 182 Arlington St., Winchester		1½	1935
Benjamin Morse, 963 Washington St., Canton	Frigidaire	1½	1933
W. H. Nichols, 48 Woerd Ave., Waltham	Brunswick-Kroeschell	9½	1936
C. J. O'Malley, Beacon St., Chestnut Hill		10	1933
John O'Sullivan, Bedford St., Lincoln	Frigidaire	3½	1935
J. W. Power, 61 Winchester Rd., Arlington		½	1934
S. B. Sanger, 433 Walnut St., Brookline	General Electric	½	1936
Mr. Wells, 50 Commonwealth Ave., Boston	Ilg	½	1935
Six Residential Installations	Boston Ice Co.	5 each	1934

*Additional. †Installed previous to 1932.

Duncan Made Board Chairman Of May Oil Burner Corp.

BALTIMORE—A. E. Duncan, chairman of the board of Commercial Credit Co., has been elected chairman of the board of May Oil Burner Corp., manufacturer of oil burners and air-conditioning equipment.

Edward E. Yaggy, Jr., formerly of Public Service and Gas Co. of New Jersey, and more recently of the underwriting division of Kidder Peabody Co., has been elected president of the organization.

P. H. Jacobson, former divisional manager in Chicago, has been elected vice president in charge of sales; Ramon Wyer, vice president in charge of production; and A. Klotzman, vice president in charge of engineering. E. Lyell Guntz will handle the corporation's sales promotion.

Rutgers Enlarges Study Course in Air Conditioning

NEW BRUNSWICK, N. J.—The correspondence course in air conditioning offered by the extension division of Rutgers university here has been completely revised and enlarged to provide up-to-date information on all new types of air-conditioning applications, equipment, apparatus, and control devices, according to C. G. Gaum, professor in the university extension course.

Designed for the engineering and sales personnel of public utilities, equipment manufacturers, heating and ventilating concerns, the revised course contains 14 sections covering air-conditioning fundamentals and applications. Sections are complete with new tables, cuts, and figures of air-conditioning systems and equipment.

A special plan by which utilities (or other organizations in which a group of men take the course) is recommended by the university.

"The method used by some utilities is to provide regular class meetings to supplement home-study work of men taking the course," states Prof. Gaum. "The student recites directly to the university which criticizes and grades the lesson report. The supervisor, usually an engineer of the utility, meets the group at stated intervals for conference and guidance.

Topics covered in the 14 sections covered in the course, include: heat, heat transfer; heat and humidity; heating; the psychrometric chart; cooling fundamentals; cooling; heating, cooling, humidifying, and dehumidifying equipment; refrigeration; filters; gas-consuming air-conditioning equipment; fans and air distribution; control apparatus; application of control apparatus; developments and trends in the air-conditioning field.

Conditioning Extends Mushroom Season

MT. PLEASANT, Pa.—Providing the cool, moist air needed for growing mushrooms during the summer months when otherwise they are non-productive, air conditioning has been put to good use by J. S. Byers, mushroom grower here.

The building used for mushroom culture, 80 ft. x 28 ft. x 17 ft. high, constructed of 8-inch Haydite block has a wood ceiling which is backed with 6 inches of granulated cork.

Air-conditioning equipment cooling the building to the required temperature consists of a 10-hp. ammonia compressor, a 5-hp. fan, and a 2-hp. water pump. Conditioned air is distributed through ceiling ducts.

Because of the high water content of the mushroom (95% of its composition is water), a relative humidity of 70 to 80% must be maintained.

Different temperatures are required at different stages in the growing process. First step is to re-soil the mushroom beds with fresh earth. After this is done, the building is usually sealed up for a two-week period during which time, the beds attain a temperature of approximately 140° F. At the end of the period the roof ventilators are opened and the temperature drops. Planting is started when the beds reach a temperature of 75° F.

After the spawn is placed in the newly soddied beds, temperature in the building is kept between 60 and 70° for a few weeks. It is then regulated to 55° F. Under this temperature mushrooms start blooming in two or three weeks.

Proper maintenance of temperature and the general vigor of the crop govern its duration.

While under normal conditions the crop produces for six months, air conditioning lengthens the growing season by several months, Mr. Byers has found.

Treatment of Air with Electricity Discussed

NEW YORK CITY—The problem of ozonization, ionization, and treatment of air with ultra violet rays, which has shown interesting possibilities in the treatment of air borne disease germs, was discussed at the first meeting of the new technical subcommittee on "The Treatment of Air With Electricity," held at American Society of Heating & Ventilating Engineers' headquarters here recently.

The research program is directed at finding out, if possible, and duplicating in indoor conditioned air, certain intangible qualities present in outdoor air, giving it a particular zest and life. (See AIR CONDITIONING AND REFRIGERATION NEWS, Jan. 6.)

At the meeting, the subject of electrical filtering of air by precipitation processes was also considered.

Present at the meeting were: Prof. L. P. Herrington, department of public health, School of Medicine, Yale university, representing Prof. C. E. A. Winslow, chairman; Dr. L. W. Chubb, director of research, Westinghouse Electric & Mfg. Co., Pittsburgh; Dr. Robert F. James, General Electric Co., Bloomfield, N. J.; and A. R. Dennington of the same company; Prof. Earle B. Phelps, bacteriologist of the College of Physicians and Surgeons, Columbia university; W. T. Wells, Harvard School of Public Health; L. R. Koller, physicist, General Electric research laboratory; Dr. C. R. Wait, Carnegie Institute of Terrestrial Magnetism; F. C. Houghten, director ASH&VA Laboratory, Pittsburgh; and Willis H. Carrier, chairman of Carrier Corp., Newark.

Akron, Ohio, Installations

Stores

Name of Customer	Installed by	Tonnage	Hp.
Prior to 1935			
Rogers Dress Shop	Carrier	7.5	8.25
Henry Shaw Co.	York	8.28	10
Melville Shoe Co.	York	7.1	7.5
Rudick's Music Store	General Electric	....	6
During 1935			
Wagner-Marsh Shoe	Avery	16	16
Artwil Dress Shop	General Electric	....	8
Schwartz Furriers	Frigidaire	....	.5
During 1936			
Carlton's Clothes	....	....	16.5
Wilbur Rogers, Inc.	....	....	16.5
Lang's	Westinghouse	....	13

Offices

During 1935			
Ohio Edison Co.'s Office, Ravenna, Ohio.	Frigidaire	....	4
Ohio Edison Co.'s Office, Barberton, Ohio.	Frigidaire	....	4
Palmer Match Co., Accounting Department	Frigidaire	....	3
During 1936			
Akron Standard Mold Co.	Frigidaire	....	1
D. M. Siff Shoe Co.	....	....	5.75
Kraus Plumbing & Heating Co.	Frigidaire	....	.75
Ohio Edison Co., Executive Offices	Frigidaire	....	8.5
Akron Furniture Co.	Frigidaire	....	.5
A. Schulman Co.	Frigidaire	....	4

Residences

During 1935			
N. C. Peters	Carrier	....	1.5
C. H. Oliver	General Electric	....	1.5
W. N. Worchester	Frigidaire	....	1.5
During 1936			
T. B. Calvin	Frigidaire	....	.75
Dr. Schrubbs	Frigidaire	....	.5
W. E. Dunford	Frigidaire	....	.5

Restaurants

Prior to 1935			
Garden Grill	Frigidaire	18	20
Merry-Go-Round	....	....	8
During 1935			
Stone Grill	Avery	....	10
During 1936			
Clark's Restaurant	Airtemp	....	18
Elite Restaurant, Ravenna, Ohio	Frigidaire	....	5.4
Canteen	Avery	....	9

Dairy Stores

During 1936			
Vale Edge Dairy, Ravenna, Ohio	Frigidaire	....	5.5

Miscellaneous

Prior to 1935			
M. O'Neil Co., Candy Kitchen	Carrier	.5	.5
M. O'Neil Co., Executive Offices (2)	Carrier	....	.5
Swartz Candy Co.	Westinghouse	4	5
During 1935			
B. & O. Railroad Pullman's	....	....	25
During 1936			
Ohio Edison Co., Banking Room	Frigidaire	....	16
St. Thomas Hospital	Westinghouse	....	4

Theaters

Prior to 1935			
Keith's Theater	....	....	200
Loew's Theater	....	....	300
During 1936			
Falls Theater	Carrier	....	30

Hotels

Prior to 1935			
Mayflower Hotel—Coffee Shop, Dining Room, Barber Shop	....	....	75
During 1936			
Mayflower Hotel—Guest Room	Frigidaire	....	1

Funeral Parlors

During 1936			
McGowan Funeral Home	....	....	7



PERFECTION Refrigeration Parts are Certified to Excel

Ask for catalog covering complete line of Compressor Parts, Valves, Condensing Water Regulators, and Fittings

PERFECTION REFRIGERATION PARTS CO.
HARVEY, ILLINOIS



Specifically designed for Freon, Sulphur Dioxide, Methyl Chloride and similar refrigerants, the General Controls type K-15 Solenoid Valve is unsurpassed for dependable refrigerant control. The valve is full ported and capable of handling large capacities at a minimum pressure drop. The solenoid is fully powered to provide instant full-opening and is current failure to allow for positive closure in current emergencies.

Closing with the line pressure on top of the seat insures a tight shutoff year-in and year-out. For complete engineering data, write for catalog F-185.

**QUIET SOLENOID
CURRENT FAILURE
TIGHT CLOSING
FULL PORTED
FULLY POWERED
PILOT OPERATED
PACKLESS DESIGN
NON-CORROSIVE
WATER-PROOF COILS**

GENERAL CONTROLS

1505 Broadway, Cleveland, Ohio
267 5th Ave., New York City, N. Y.

1370 Harrison St., San Francisco, Calif.
421 Dwight Building, Kansas City, Mo.

INSTALLATION AND SERVICE METHODS

Activated Alumina as a Drying Agent In Refrigeration Systems

By the Research Department, Aluminum Co. of America

ACTIVATED alumina is a non-metallic granular material capable of removing substantially all the moisture from commercial refrigerants.

In outward appearance activated alumina resembles some other dehydrators, but it differs from most of them in its manner of removing moisture from refrigerants, in its physical and chemical characteristics, and in its effectiveness for removal of acid and oil vapors.

The action of activated alumina in removing moisture that would ultimately cause mechanical freeze-ups in refrigerant systems is known as "adsorption." It is a physical phenomenon and differs from the action of chemical driers, such as calcium chloride in which water is taken up to form a definite hydrate, and calcium oxide with which water unites to form the hydroxide.

The action of activated alumina also differs from that of a sponge in

which water is absorbed. The phenomenon of adsorption is not thoroughly understood, but it is believed by many to be the result of the presence of attractive forces, molecular in nature, on the surface of adsorbents.

Efficient adsorbents, therefore, are substances possessing strong attractive forces and a large surface area per unit of volume. Activated alumina falls within this classification. Approximately one-third of its volume is made up of pores and it is capable of adsorbing moisture amounting to 20 to 25% of its dry weight.

The removal of moisture by a dehydrator is important in eliminating causes of corrosion, but with some dehydrating agents moisture reacts chemically to form a salt solution which circulates with the refrigerant, resulting in additional corrosion.

This does not happen with activated alumina because it undergoes no physical or chemical change in

the presence of water.

Activated alumina, being a stable material, does not cake in the dehydrating cartridge and does not offer objectionable resistance to the free circulation of the refrigerant.

Activated alumina is stable mechanically, an advantage in preventing too close packing in a cartridge. Its high compressive strength and resistance to shock are said to eliminate troubles which might arise from crushing, and the handling problem is simplified for the service man. A small amount of dusting, caused by abrasion between the particles, may occur during handling, but not enough to increase materially the resistance to flow of the refrigerant through the cartridge. Activated alumina is available in any mesh size ranging from powder to pieces 1½ inches in diameter.

It is well known that sulphurous acid is formed by the reaction between sulphur dioxide and water, and that methyl chloride and some of the other refrigerants tend to form acid.

Since the presence of acids in refrigerant systems is objectionable because of their corrosive action on metal parts, several methods of removing them are in use. One is to install a cartridge containing a metal which reacts with and uses up the acid; another is to employ a dehydrator such as calcium oxide which in the presence of moisture forms a hydroxide capable of neutralizing the acid.

Activated alumina effectively removes acids from refrigerants, but whether they are eliminated by adsorption or some other process has not been definitely established.

REACTION WITH OIL

Some oil is usually present in refrigerants, but it has no deleterious effect on the drying power of activated alumina. Experience confirms this claim; in fact, activated alumina suspended in degraded transformer oil completely removes all water and acid, and the oil is restored to its original condition.

Not only does activated alumina adsorb moisture when saturated with oil, but it also adsorbs oil vapors when saturated with water. Consequently, it is in effect a filter for removal of oil vapor from refrigerant systems. Some large producers of compressed gases take advantage of this characteristic of activated alumina in the removal of oil vapors prior to drying the gases, and find that a dryer of this type is more effective than mechanical filtering devices now available.

Activated alumina, when produced, is in the fully activated condition and is shipped in sealed containers. Unlike many dehydrators, the appearance of activated alumina does not change as it adsorbs moisture, and even when completely saturated shows no evidence of being wet.

HOW TO REACTIVATE IT

If for some reason the material is suspected of not being fully activated, it can be reactivated by heating in an oven controlled at 400° F. Heat is conducted slowly through activated alumina, and care should be taken to make sure that the entire amount reaches the required temperature. It should not be subjected to temperatures above 600° F.

Standard types of commercial dehydrating cartridges are available from a number of manufacturers for use with activated alumina. Cartridges usually are assembled with filters and screens to hold the drying agent in place, and to prevent fine particles from entering the system.

PLACEMENT IN SYSTEM

To service a refrigerant system with activated alumina, the same volume of material is used as in the case of other driers. The two mesh sizes commonly employed are 4 to 8 mesh and 8 to 14 mesh. The finer size provides slightly greater surface area than the coarser size, but offers a little more resistance to flow.

The cartridge is usually placed in the liquid line because any increase in resistance to flow is not as objectionable in this phase as it would be in the suction line.

However, activated alumina is capable of removing greater quantities of moisture from gases than from liquids and therefore may be more effective in the suction line.

After servicing a system, the charge of activated alumina should

be discarded. This practice eliminates the possibility of contaminating the refrigerant in systems subsequently treated.

No attempt should be made to reactivate a charge after it has been used because if appreciable quantities of oil have been adsorbed, a special reactivation procedure is required.

There is some question as to the rapidity with which various dehydrators are capable of drying refrigerants. Since a dehydrator can take up only that moisture which comes in contact with it, its drying rate depends on the frequency with which contacts are established between the refrigerant and the surface of the dehydrating particles.

The frequency of these contacts is governed by the amount of dehydrator employed, the extent of its surface area, and the number of times the refrigerant is circulated through the dehydrator. A fresh cartridge of activated alumina instantaneously takes up substantially all the moisture which comes in contact with it. This is also true of most chemical driers. Therefore, there should be no marked difference in the drying rates of activated alumina and chemical driers.

As an indication of the adsorptive power of activated alumina, the results of tests on humid air, conducted by the Aluminum Research Laboratories, are given in Table 1.

Four commonly used drying agents—activated alumina, calcium chloride, sulphuric acid, and phosphorus pentoxide—were employed. The dehydrators were placed in glass "U" tubes and connected in a series through which air of high humidity was drawn. The tubes were weighed before and after passage of the air and the gain in weight indicated

Table 1

Comparative Results of Drying Air of High Humidity with Activated Alumina, Calcium Chloride, Sulphuric Acid, and Phosphorus Pentoxide.

Relative Position in Series of Dehydrating Agents During Test	Moisture Removed Per Cent of Total
Test A	
1st: Activated Alumina	99.9
2nd: Calcium Chloride	-0.1
3rd: Sulphuric Acid	0.0
4th: Phosphorus Pentoxide	0.2
Test B	
1st: Calcium Chloride	95.1
2nd: Sulphuric Acid	0.3
3rd: Activated Alumina	4.6
4th: Phosphorus Pentoxide	0.0

Note: Weight of dehydrating agents employed in tests:
Activated Alumina 10.52 grams
Calcium Chloride 10.27 grams
Sulphuric Acid 7.24 grams
Phosphorus Pentoxide 2.50 grams

the amount of moisture each material had taken up.

In test "A," activated alumina, which was first in the series, adsorbed 99.9% of all the moisture removed by the four driers and it dried the air so completely that the other materials were able to remove little or no additional moisture.

In test "B," calcium chloride was first in the series and it took up 95.1% of all the moisture removed. Sulphuric acid, second in the series, removed 0.3%; and activated alumina, which was next, adsorbed 4.6%. Phosphorus pentoxide, which followed activated alumina, was unable to remove additional moisture.

Activated alumina is used by manufacturers of refrigerating equipment and by service repairmen. Many industrial installations outside the refrigeration industry employ activated alumina in large quantities for drying gases and vapors to very low dew points and for dehydrating liquids.

REFRIGERATION SUPPLY JOBBER ACTIVITIES

McKerracher Heads Detroit Contractor Group

DETROIT—E. C. McKerracher of Redford Refrigeration Co. was elected president of Detroit Refrigeration Contractors, Inc., at the first 1937 meeting of the organization, held recently. J. A. Mercer, of Square Deal Refrigeration Co., was elected vice president; W. H. Corsan, of ABC Refrigeration Service, secretary; and W. G. Euth, of Euth-Lambrecht, Inc., treasurer.

On the board of directors are: J. E. Perry, J. E. Perry Co.; W. F. Mercier, Mercier & Clark, Inc.; J. Lindsay, Ace Refrigeration Service; J. A. O'Kane, Refrigerator Service; and C. Milazzo, Automatic Refrigeration Service.

New officers and directors will be formally installed at a dance to be given in their honor, date of which will be announced later.

Woodall to Represent Virginia Smelting in San Francisco

SAN FRANCISCO—Nelson W. Woodall, 7 Front St., has been appointed to represent Virginia Smelting Co., manufacturer of sulphur dioxide and methyl chloride refrigerants, in this territory.

Mr. Woodall succeeds A. F. Tudury and the Refrigerating & Power Specialties Co., San Francisco, as factory agent for Virginia Smelting products.

Jobbers recently signed as distributors include California Refrigerator Co., 1077 Mission St., San Francisco, and American Brass & Copper Co., Oakland.

Tulsa Jobber Adds to Air Conditioning Supplies

TULSA, Okla.—Machine Tool & Supply Co., headed by Leo H. Gorton, member of the board of directors of National Refrigeration Supply Jobbers' Association, has added air-conditioning grilles, blowers, fans, and many other items to its stock of refrigeration and air-conditioning supplies.

These additions have been made in response to the rapidly increasing popularity of air conditioning in this territory, and the consequent demand for materials and supplies, said Mr. Gorton.

O'Bannon Takes on Curtis Condensing Unit Line

TULSA, Okla.—O'Bannon Butcher Supply Co., owned and operated by M. E. O'Bannon, has recently added the Curtis line of condensing units to the line of Koch display cases previously carried.

Anticipating a rapid business increase during 1937, this firm is contemplating the employment of a full time service man for its installations.

Keefe Heads Service Dept. Of Bader Supply Co.

TULSA, Okla.—J. R. Keefe has been appointed head of the refrigeration service department of Bader Supply Co., here. Several other personnel additions have been made recently.

Bader Supply will now take service calls on all commercial equipment.

MINNEAPOLIS-HONEYWELL

uses

SYLPHON BELLOWS

in Refrigeration Pressure
and Temperature Controls

Contributing toward the dependability, accuracy and long trouble-free service of Minneapolis-Honeywell controls, Sylphon Bellows have helped this manufacturer build an enviable reputation for customer satisfaction.

So it is with many of the leaders in the refrigeration industry who have the greatest investment in product acceptance and good will. They want nothing less than the time-tested superiority of this, the most highly developed metal diaphragm in the world—backed by 35 years of experience in its correct application and an intimate knowledge and appreciation of refrigeration thermostat requirements. Write for Bulletin BO-122. Sent on request.

FULTON SYLPHON CO.
KNOXVILLE, TENN., U.S.A.



DURING 1936 the demand for Commonwealth Brass Corporation fittings jumped far ahead of any previous record in the more than 25 years that these fittings have been available to refrigeration.

When new records are made it is obvious that the contestant has 'something', whether it be natural aptitude, superb condition, or thoroughly co-ordinated facilities. This holds true in the case of a ski-jumper or a corporation.

In a corporation, for example, the reasons for pre-eminence are its personnel, its equipment and its management. When the management coordinates to the end that complete satisfaction to its customers is assured, then that corporation may be depended upon to be, always, a jump ahead.

At Commonwealth the assembly of veteran skill, unexcelled equipment and the definite understanding of consumer's needs is at once a guarantee and a pledge of the same unbroken record of satisfactory dealings on which the corporation has, for more than a quarter of century, built up its present position.

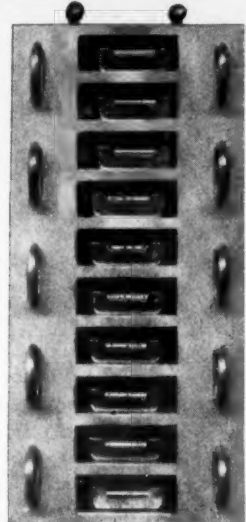
Specify: Commonwealth Fittings
Built Right To Stay Tight



COMMONWEALTH
BRASS CORPORATION
Commonwealth and G. T. R. R. DETROIT

— BUYER'S GUIDE —

SUPPLIERS WHO SPECIALIZE IN SERVICE TO THE INDUSTRY



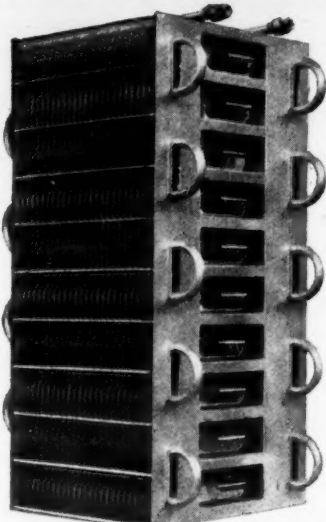
PEERLESS FINNED ICE-CUBE MAKERS

The Convenience of an Ice Cube Maker and Refrigerating Coils Combined in a Single Unit

Peerless Finned Ice Cube Makers are manufactured with standard 3" fins, Riffed Tubing, and "Non-soldered" return bends. All aluminum trays and shelves with ice capacity of twenty-four cubes or three pounds per tray, per freezing. A wide selection of coil surface and ice cube capacity to fill any normal requirement is available. These units are especially adaptable for Reach-in coolers in restaurants, delicatessens, and other applications desiring both refrigeration and ice cubes.

PEERLESS of AMERICA, Inc.
EST. IN 1912 AS THE PEERLESS ICE MACHINE CO.

Three Factories
NEW YORK 43-20 34th St. LONG ISLAND CITY
CHICAGO 515 West 35th St.
PACIFIC COAST 3000 South Main St. LOS ANGELES



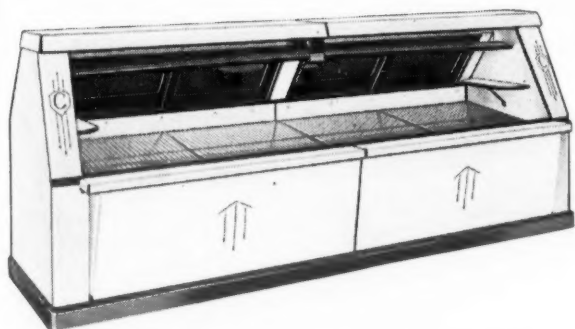
THE KOCH ECON-O-CASE
The Newest KOCH PRODUCT
CORRUGATED INSULATION
ALL-STEEL CONSTRUCTION
Built for SERVICE Priced to SELL
TRIPLE GLAZING-RUBBER DOORS
DOUBLE DUTY-6, 8 and 10 ft. LONG

In addition to standard products, Koch now offers the Econ-O-Case, selling at the very lowest price level, and worthy of the Koch name in every respect. This new display case, sold only through distributors, opens a vast new market for Koch equipment. Write for details.

KOCH REFRIGERATORS
North Kansas City, Missouri

Economical IN COST Economical IN OPERATION
WRITE TODAY FOR PROPOSITION

The Campbell line will earn you a **PROFIT!!** WHAT'S MORE it will be net profit. You won't spend it in service after the job is installed.

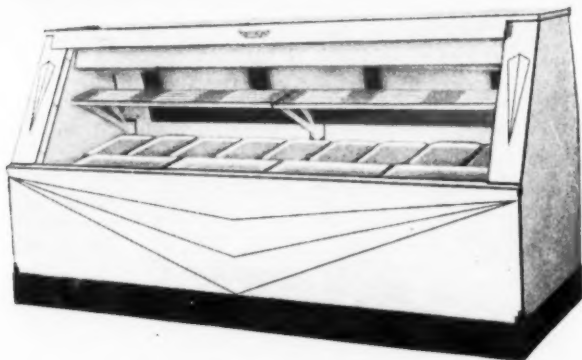


If you are interested in an exclusive, profitable dealer's franchise, write,

CAMPBELL REFRIGERATOR CO.

748 W. Virginia Street
MILWAUKEE, WISCONSIN

Guaranteed Satisfaction to Seller and User Assured You by Fogel Cases and Coolers. The Stamp of Approval by Fogel Insures You of Quality Throughout by Concentration on a Quality Line Only. The Sale of the Fogel Quality Line Will Earn Larger Profits for You Through Increased Volume.



Write for details today. Our Franchise is valuable.

- 1—Immediate acceptance through exclusive selling features.
- 2—Greater value, quicker results, larger profits.

FOGEL REFRIGERATOR COMPANY
Philadelphia, Pa.

Insulation Service Co. Moves To New Building

MILWAUKEE — Insulation Service, Inc. has moved to a modern two-story building with 10,000 sq. ft. of floor space, according to Walter M. Ericson, president.

Mr. Ericson attributed much of the company's recent business increase to the rapid popularization of cooperative refrigerated produce storage lockers for farmers. These lockers, in which farmers may store meat and other perishables, are located usually in cheese factories and other farm cooperative plants.

The widespread use of air conditioning also has aided the insulation business, Mr. Ericson declares.

Marquette Sells Refrigerants In Peoria Territory

PEORIA, Ill.—The Marquette Equipment Co., Oak and Washington Sts., has succeeded the Isaac Walker Co. as representative of Virginia Smelting Co. in the Peoria territory.

The new company has the same personnel as the old Isaac Walker Hardware Co., R. J. Swann, continuing as president.

Fulton Syphon Lists Control Equipment in New Catalog

KNOXVILLE, Tenn.—Fulton Syphon Co. has just brought out a new catalog, listing under 11 sections the equipment and apparatus it manufactures for the automatic control of pressures and temperatures.

Shown in the catalog are: temperature regulators for liquids; steam water mixers and hot-cold water mixers; temperature regulators for air and gases; electrically operated temperature regulators; automatic radiator valves; pressure regulators; expansion joints; damper regulators; vent valves; valves for regulators; and bulbs for regulators.

Each section lists specifications of equipment, construction and operation details, installation instructions, and typical uses of the apparatus.

Molnar Heads Reorganized Dept. for Hoarmles

COLUMBUS, Ohio—A. C. Molnar is manager of the reorganized service department of Hoarmles Music Store, local appliance dealership. Mr. Molnar has had eight years experience in service work on refrigerators, washers, radios, and other household appliances.

COMMERCIAL REFRIGERATION SERVICE

Flooded Evaporators in Reach-in and Walk-in Coolers

CHAPTER 7—Evaporators & Refrigerant Controls (Cont.)

BY K. M. NEWCUM

Flooded Fin Coils in Reach-in Refrigerators

There are also many installations of fin flooded commercial evaporators in what are commonly called "reach-in refrigerators" as illustrated in Fig. 114. Here again is a problem in circulation.

The compartment immediately below the coil compartment is supplied with an abundance of chilled air so it is the coldest space in the refrigerator. The cold air then moves over into the lower side compartment. By picking up heat, the air becomes warmer and rises up through and around the shelves to the top right hand compartment thence into the coil compartment. In this case the upper right hand compartment is the warmest part of the refrigerator. For this reason foods requiring a lower temperature such as fresh meats, milk, etc., should be stored in the lower part of the refrigerator.

Here again modern "reach-in" or often called "dairy" or "butter" or "restaurant" refrigerator design has been improved to provide for overhead coils which result in more uniform temperatures. A latter design using an overhead cross fin flooded evaporator is shown in Fig. 115.

Fin coils of the older type such as models 16F, 17F and 18F using SO₂ as the refrigerant due to their limited surface, operate at a lower back pres-

often were varied slightly for the particular application.

With the latter type cross fin flooded evaporator under the same refrigerator temperatures, etc., the "cutting out" back pressure was around 5 inches to 6 inches vacuum.

This difference in cutting out pressure represented a major improvement in evaporator design.

Many of the older evaporators were replaced with this newer type and far better temperature and humidity results were obtained. With increased evaporator surface, lower average

refrigerator temperatures are obtainable while operating on a defrosting cycle. This is, of course, due to operating at higher refrigerant and evaporator temperatures, hence pressure is made possible by the abundance of tube and fin surface.

Flooded Walk-in Cooler Evaporators

A "walk-in cooler" as the name suggests is a large refrigerator—usually with the evaporator overhead—used for storing large quantities and large cuts of meats or produce. It is provided with a large door permitting a person to walk inside the cooler.

These walk-in coolers or refrigerators are usually equipped with an overhead baffle or bunker. The term "bunker" is handed down from ice refrigerators in that the large quanti-

(Concluded on Page 17, Column 1)

Reach-In Refrigerator

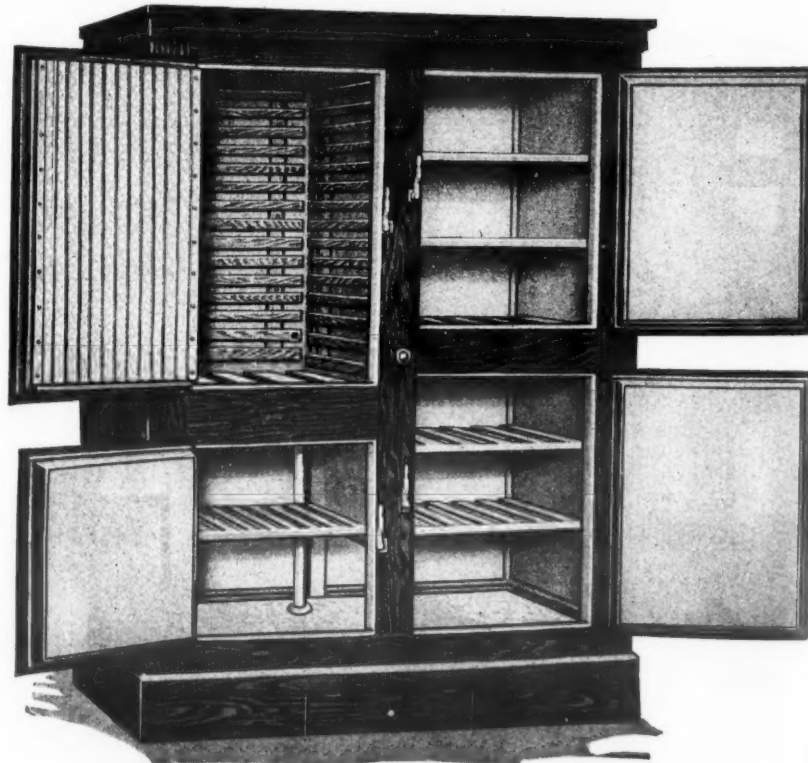


Fig. 114—Typical commercial refrigerator of the reach-in type.

Coils in Reach-in Box

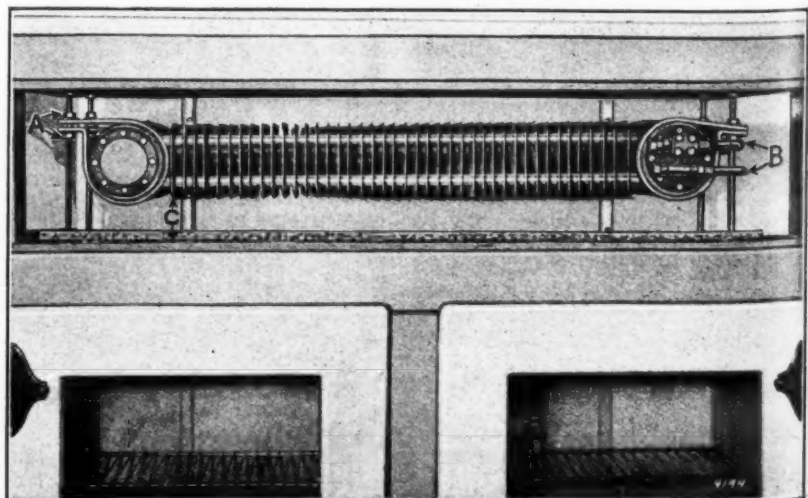


Fig. 115—Overhead cross-fin flooded evaporator installed in reach-in refrigerator.

Baffle Arrangement

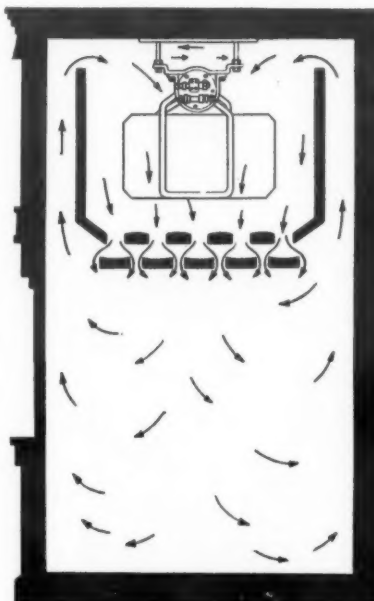


Fig. 116—Flooded evaporator installation in walk-in cooler.

sure than the later much improved cross fin flooded coils similar to models 15F, 19F, and 26F.

The later models have considerable more tube surface, more fins and closer spaced.

A standard original low pressure control setting for an installation using the older type was 10-lbs. cut in the 10-lbs. cut out. These settings

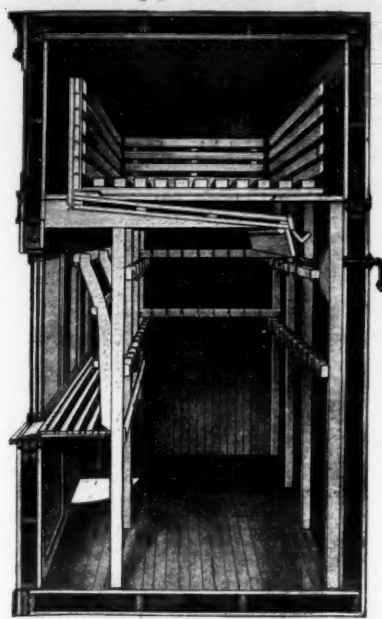
'L'-Type Baffle

Fig. 117—Favored type of baffle for use with ice or cooling coils in a walk-in cooler.

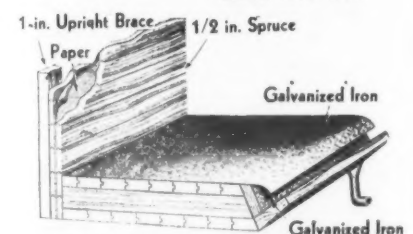
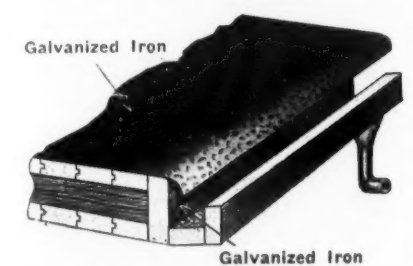
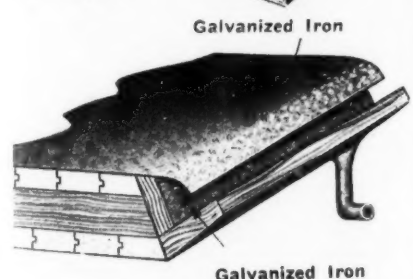
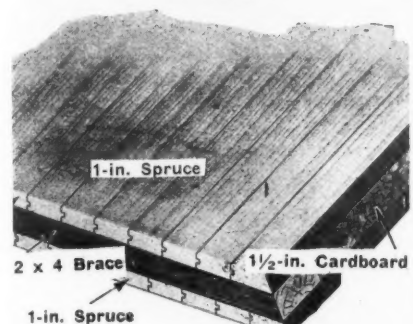
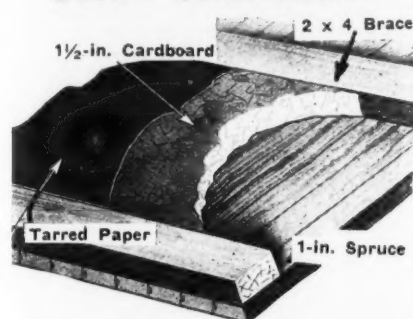
Baffle Construction

Fig. 118—Insulated baffle.

Coil and Baffle Installations in Walk-in Coolers

(Concluded from Page 16, Column 3) ties of ice used to cool such coolers were stored in the "bunker."

The term "baffle" is intended to mean surfaces or objects assisting in directing the flow of circulating air in the refrigerator.

Walk-in coolers present a less complicated problem of producing uniformly low refrigerator temperatures with flooded evaporators than do end bunker cases because the air circulation is more natural with the evaporator overhead.

Some original walk-in cooler installations used two or more case coils distributed throughout the "bunker" compartment.

The next step was the large flooded "cooler" coils, such as models 95F, 88F, and 96F as shown in Fig. 88. With the larger coils, it was possible to equip the smaller more popular sizes of walk-in coolers with one coil, and in larger sizes with two or more.

The same principle of design and operation applies to flooded cooler coils as to flooded case coils.

Fig. 116 shows an early installation of a flooded evaporator in a walk-in cooler. The baffle arrangement known as "slat type" was standard equipment in early models of ice-cooled refrigerators. Many installations of flooded fin coils were made in these early ice-type refrigerators with the slat type of baffle.

Opinions differ as to success of mechanical refrigeration with this slat type baffle arrangement. Some installations functioned properly; others showed poor results which were attributed to poor circulation due to this baffle arrangement.

As a result of cooperative tests by both the refrigeration and refrigerator manufacturer, the old slat type baffle was discontinued in favor of the "L" type baffle (shown in Fig. 117) for use with both ice and mechanical refrigeration. When used with ice, the racks are left intact. The ice racks are removed as unnecessary when used with mechanical refrigeration, leaving the bottom and side baffle.

Baffles should be insulated, especially the bottom baffle, to prevent sweating on the under side, resulting in drippage on the product.

Fig. 118 illustrates the construction of an insulated baffle. Figs. 119 and 120 show two of several methods used in supporting cooler coils.

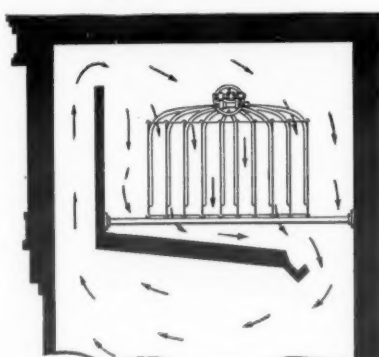
Support Method

Fig. 120—Another method of supporting cooling coils.

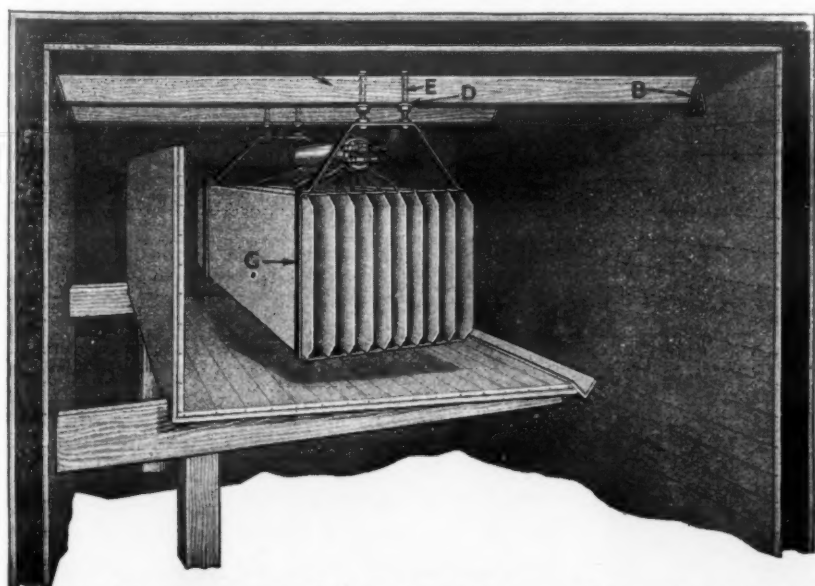
Cooling Coil Support

Fig. 119—Method of supporting cooling coils in a walk-in cooler. Two-by-fours (A) are supported by four brackets (B). Holes for bolts (E) are bored through the two-by-fours, and hanger straps (F and G) bolted on with washers and bolts (C and D).

Two Baltimore Distributing Offices Moved

BALTIMORE—Local branch office of Brunswick-Balke-Collender Co., New York manufacturer of refrigerating equipment, soda fountain and bar fixtures, and kindred products, has been moved to new and larger quarters at 11 S. Howard St. Former location of the company was at 106 S. Howard St.

Air conditioning, Inc., local Carrier distributor, is now established in larger quarters at 1119 N. Charles St., just one door away from its former location.

Starrett Co. Installs G-E Water-Cooling Equipment

ATHOL, Mass.—L. S. Starrett Co., tool manufacturer, has installed General Electric water cooling equipment consisting of 28 RM-51 and RM-61 coolers, one RM-21 cooler installed in the first aid room, and 13 remote bubblers operating from units installed in several departments of its plant here.

Installation of the equipment was made by Athol Gas & Electric Co. during the first two weeks of last August when the factory was shut down for the annual vacation. George W. Grant, sales manager of the local utility, was responsible for the sale and personally supervised the installation.

Two deep artesian wells furnished the water supply for the old cooling system, water from these wells being circulated through the factory to conveniently located bubblers.

In order to provide cold water, bleeders were in use at each drinking station. An excessive amount of water was wasted under this system, and it is estimated that the new system saves about 5,000 gallons of water every working day of nine hours.

Newcum Points Out Errors in Manual As Published

K. M. Newcum, author of the "Commercial Service Manual" now being published in serial form in AIR CONDITIONING AND REFRIGERATION NEWS, has called our attention to some errors in recent instalments of the Manual as published in the News.

In the Dec. 2 issue, the instalment headed "Operation and Construction of Water Regulating Valves," the tenth paragraph starting with "Pressure-actuated water valves differ"—should have read as follows:

Pressure-actuated water valves differ only in that one design may use a bellows to obtain the movement necessary to operate or actuate the valve while other designs employ a diaphragm for this purpose. Some valves close against the pressure while others close with the pressure.

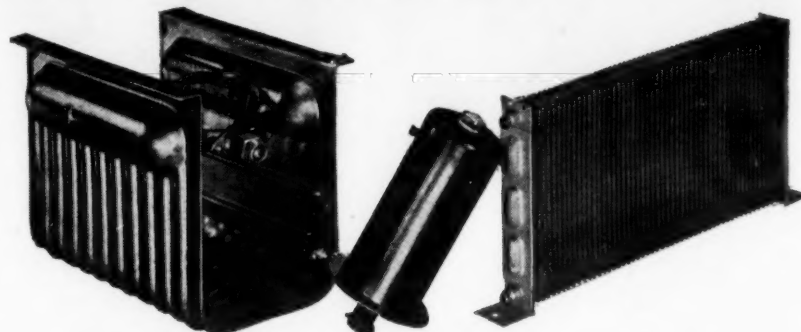
In the same instalment, Paragraph 4, column 3, starting with "Note in Fig. 80" should read: Note in Fig. 79. Paragraph 6, column 3, should read: When the compressor starts the on cycle, the high pressure in the compressor, head, condenser, and the pressure bellows increases.

In the Dec. 23 issue, the instalment headed "Service Operations on Flooded Evaporators & Float Valves," the third sentence in the third paragraph of the second column reads "This gas would raise the liquid level in the evaporator and as a result the float valve would remain open." It should read:

This gas will not raise the liquid level in the evaporator and as a result the float valve would remain open.

BUYER'S GUIDE

SPECIAL RATES APPLY TO THESE COLUMNS ONLY
WRITE ADVERTISING DEPT. FOR FULL INFORMATION

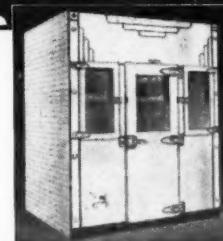
SUPPLYING THE REFRIGERATION INDUSTRY

Evaporators, Receivers, Condensers, Compressor Domes, Compressors and Mechanical Parts. Also "Houdize," a perfected process for permanently uniting ferrous or non-ferrous metals.

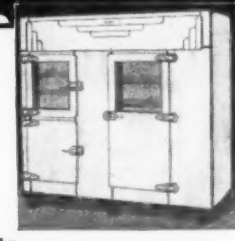
OAKES PRODUCTS CORP.
North Chicago and Decatur, Ill.

HOUE ENGINEERING CORP.
Buffalo, New York

DIVISIONS OF HOUDAILLE - HERSHEY CORPORATION
General Executive Offices: Detroit, Mich.

DISTRIBUTORS WANTED

Percival equipment meets every requirement of the modern food store.

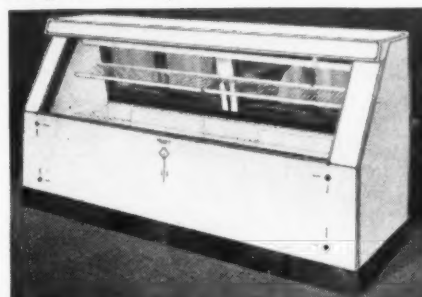


For mechanical refrigeration only

Percival's complete line will increase your sales of electrical refrigeration equipment and offer added earnings. Desirable territories still available. Write for complete information.

1886-1937

51 years of service to meat markets



C. L. PERCIVAL CO.
DES MOINES, IOWA

The New IMPERIAL HI-SIDE FLOAT

EXCLUSIVE features offer a positive control of the flow of the refrigerant into the evaporator under all conditions. Can be used with sulphur dioxide, methyl chloride, or Kinetic No. 12. Self-purging when vapor-bound by means of adjustable bypass, which can be used also for manual purging.

No. 211-C Imperial Hi-Side Float. Each.....\$6.50

Write for new catalog 77-E

IMPERIAL BRASS MFG. CO.
565 S. RACINE Ave. CHICAGO

**No Bother! No Breakage! No Waste of Service Time!**

Take a Ranco Exact Replacement to the job! Quick work. Pleased customers. Clean profits. Write today for Bulletin No. 655.

RANCO, Inc., Columbus, Ohio

RANCOSTAT
The ORIGINAL Stainless Steel Thermostat**QUANTITY PRODUCTION**

made this Super-Cold Freezer the most efficient and lowest priced in America. Undersell nearest competition \$200.00. Shipped with or without condensing unit. Thousands of interested prospects.

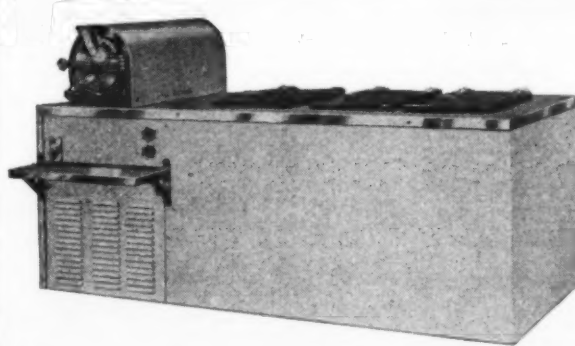
For Franchise write

THE SUPER-COLD CORPORATION, 1020 EAST 59th STREET, LOS ANGELES, CALIFORNIA

Branches and Stocks at:

32-27 QUEENS BLVD., LONG ISLAND CITY, N.Y.
2021 COMMERCE ST., DALLAS, TEXAS

540 N. LA SALLE ST., CHICAGO, ILL.
268 GRAYS INN RD., LONDON, W. C. 1



BUYER'S GUIDESUPPLIERS WHO SPECIALIZE IN SERVICE TO THE
REFRIGERATION AND AIR CONDITIONING INDUSTRIES**MILLS**
COMPRESSORS

for Commercial Use

Mills Novelty Company • 4100 Fullerton Avenue • Chicago, Illinois



Model No. 500-A

"CHIEFTAIN"
QUALITY-BUILT
COMPRESSORS and
CONDENSING UNITSAll bearings diamond bored. Positive
lubrication of parts by newly de-
veloped process plus forced feed
lubrication in all models.

Sizes: 1/6, 1/5, 1/4, 1/3 h.p.

Write for prices

TECUMSEH PRODUCTS CO.
Tecumseh, Mich.**OFFICES**New York
480 Lexington Ave.Chicago
Room 2258
La Salle-Wacker
BuildingDetroit Export
Department
1002 Palms Bldg.Los Angeles
122 Mariposa St.
St. Louis
577 Arcade Bldg.**REMPE**

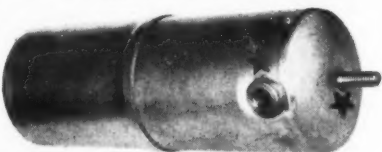
FIN COILS - for Commercial Use

PIPE COILS & BENDS

Rempe Company, 340 N. Sacramento Blvd., Chicago, Illinois

BRAZED IN CONTROLLED ATMOSPHERE

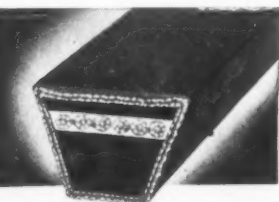
This receiver tank is made with special stampings brazed in a controlled atmosphere electric furnace. This process is the newest of our facilities for producing Pressed Metal Products. We furnish stampings, assemblies, hydrogen brazing and enameling. Stamped compressor bases are one of the many items we supply. Check us for prices.

**Acklin****THE ACKLIN STAMPING CO.**
Toledo, Ohio Chicago, Illinois
Detroit, 2-165 General Motors Bldg.**Commercial Condensing Units**

announce:

Model MRK-JR Model MRK-SR
Precision Built—Direct Drive Com-
pressors—Compact—New Design—
Radial Crankcase Adjustment—
Dependable 1/2—1 HP.
Replacement Units

Write for Details

Commercial Refrigeration Co., Inc.
55 South Avenue Rochester, N. Y.**Get a Gilmer V-Belt**
HAS FIVE FEATURES!

1. Top tension rubber.
2. Endless pulling cord locked in permanent horizontal plane.
3. Brute-strength bottom rubber.
4. Triple-wear double jacket.
5. Controlled stretch.

Lasts longer. Grips tighter. Stays quiet.
Sleeved and plainly sized, for all
small-unit equipment. Get catalogue.**L. H. GILMER CO., Tacony, Philadelphia****MARSH** Refrigeration Instruments

Buy service—not service calls

The Marsh merkustat electrical cut-out has earned its reputation as the motor control that always works right. It is constructed with bronze bourdon tube for any pressure medium that will not corrode brass, and with steel bourdon tube for ammonia and carbon dioxide. When safety is at stake only the best equipment is good enough—and that means Marsh. Write for new catalog describing Marsh gauges, thermometers and recorders.

JAS. P. MARSH CORPORATION
2067 SOUTHPORT AVENUE, CHICAGOWRITE FOR
NEW CATALOG**Borg-Warner Division Buys
U. S. Pressed Steel Co.**

CHICAGO—Ingersoll Steel & Disc division of Borg-Warner Corp. has purchased U. S. Pressed Steel Co., Kalamazoo, Mich., according to announcement made by Roy C. Ingersoll, president of the former concern.

C. V. Brown, founder of the Kalamazoo plant, and his son, R. J. Brown, Detroit, will continue the business under the supervision of the Ingersoll division, the announcement stated. U.S. Pressed Steel employs 250 men.

- PATENTS -

Issued December 22, 1936

2,064,808. AIR CONDITIONING. Charles F. Beran, Tuckahoe, N. Y., assignor to Celanese Corp. of America. Application Feb. 8, 1934, Serial No. 710,305. 2 Claims. (Cl. 261-115)

2,064,837. FREEZING UNIT FOR REFRIGERATORS. Gordon F. Keyes, Salem, Ohio, assignor to Mullins Mfg. Corp., Salem, Ohio. Application Dec. 24, 1930, Serial No. 504,569. 10 Claims. (Cl. 62-126)

2,064,887. THERMOSTATIC CONTROL APPARATUS. Frederick Norman Chester, Jersey City, N. J. Application July 28, 1932, Serial No. 625,227. 8 Claims. (Cl. 200-140)

2,064,926. REFRIGERATOR. Chester A. Kuebler, Erie, Pa. Application Nov. 29, 1933, Serial No. 700,232. 8 Claims. (Cl. 62-89)

2,064,931. HEAT TRANSFER. Alf Lysholm, Stockholm, Sweden, assignor to Aktiebolaget Luftstroms Angturbin, Stockholm. Application Oct. 21, 1932, Serial No. 638,979. In Great Britain Dec. 21, 1931. 7 Claims. (Cl. 257-245)

2,064,946. THERMOSTATIC REGULATOR. William H. Reynolds, Silver Spring, Md., assignor to American Instrument Co., Washington, D. C. Application Feb. 12, 1935, Serial No. 620,227. 16 Claims. (Cl. 200-141)

2,064,948. HUMIDISTAT. Even J. Rohne, Minneapolis, assignor to George G. Struthers, Minneapolis. Application July 12, 1934, Serial No. 734,830. 21 Claims. (Cl. 200-52)

2,064,972. REFRIGERATOR. Earl E. Eickmeyer, Dayton, assignor to The Dayton Pump & Mfg. Co., Dayton. Application July 19, 1934, Serial No. 736,103. 4 Claims. (Cl. 62-116)

2,065,062. VALVE FOR HIGH SPEED COMPRESSORS. Paul Dugelay, Paris, France, assignor to Societe d'Exploitation de Brevets pour l'Industrie l'Aviation et l'Automobile (Sebia), Paris. Application July 2, 1931, Serial No. 548,340. In France July 9, 1930. 4 Claims. (Cl. 277-60)

2,065,116. SHELF CONSTRUCTION. Arthur R. Constantine, River Forest, and Andrew A. Gedde, Chicago, assignors to General Household Utilities Co., Chicago. Application Feb. 23, 1934, Serial No. 712,564. 9 Claims. (Cl. 211-153)

2,065,148. COOLING APPARATUS OPERATING WITH THERMOSTATS. Fritz Nallinger, Stuttgart, Germany, assignor to Daimler Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany. Application April 11, 1934, Serial No. 720,104. In Germany March 18, 1933. 6 Claims. (Cl. 236-34)

2,065,162. FLUID COMPRESSOR. Allen Trask, Oak Park, Ill., assignor to Mills Novelty Co., Chicago. Application Sept. 30, 1933, Serial No. 691,601. 12 Claims. (Cl. 230-206)

2,065,187. VACUUM REFRIGERATING UNIT. John Kirgan, Easton, Pa., assignor to Ingersoll-Rand Co., Jersey City, N. J. Application May 8, 1934, Serial No. 724,472. 18 Claims. (Cl. 62-152)

2,065,195. AUTOMATIC OIL SEPARATOR CONTROL FOR REFRIGERATING SYSTEMS. Charles R. Neeson, New Rochelle, N. Y., assignor to Baldwin-Southwark Corp. Application July 13, 1933, Serial No. 680,181. 11 Claims. (Cl. 103-206)

2,065,220. CONTROL APPARATUS. Otto T. Handwerk, Chicago, assignor, by mesne assignments, to The Brown Instrument Co., Philadelphia. Continuation of applications Serial No. 484,059, Sept. 24, 1930, and Serial No. 513,662, Feb. 5, 1931. This application May 22, 1933, Serial No. 672,359. 23 Claims. (Cl. 200-56)

2,065,350. COMPRESSOR FOR REFRIGERATING MACHINES. Christian Steenstrup, Schenectady, assignor to General Electric Co. Application Aug. 26, 1933, Serial No. 686,959. 11 Claims. (Cl. 230-206)

2,065,358. METHOD OF CHILLING ANIMAL CARCASSES. Mihail Trofim Zarotschenzeff, New York, assignor, by mesne assignments, to Z Processes, Inc., Jersey City, N. J. Application Oct. 12, 1933, Serial No. 693,267. 4 Claims. (Cl. 99-194)

2,065,391. REFRIGERATING APPARATUS. James J. Nance, Dayton, assignor to General Motors Corp., Dayton. Application Oct. 19, 1933, Serial No. 694,281. 4 Claims. (Cl. 211-153)

2,065,485. REFRIGERATING APPARATUS. Daniel D. Wile, Detroit, assignor to Detroit Lubricator Co., Detroit. Application July 9, 1935, Serial No. 30,440. 10 Claims. (Cl. 62-115)

REISSUES

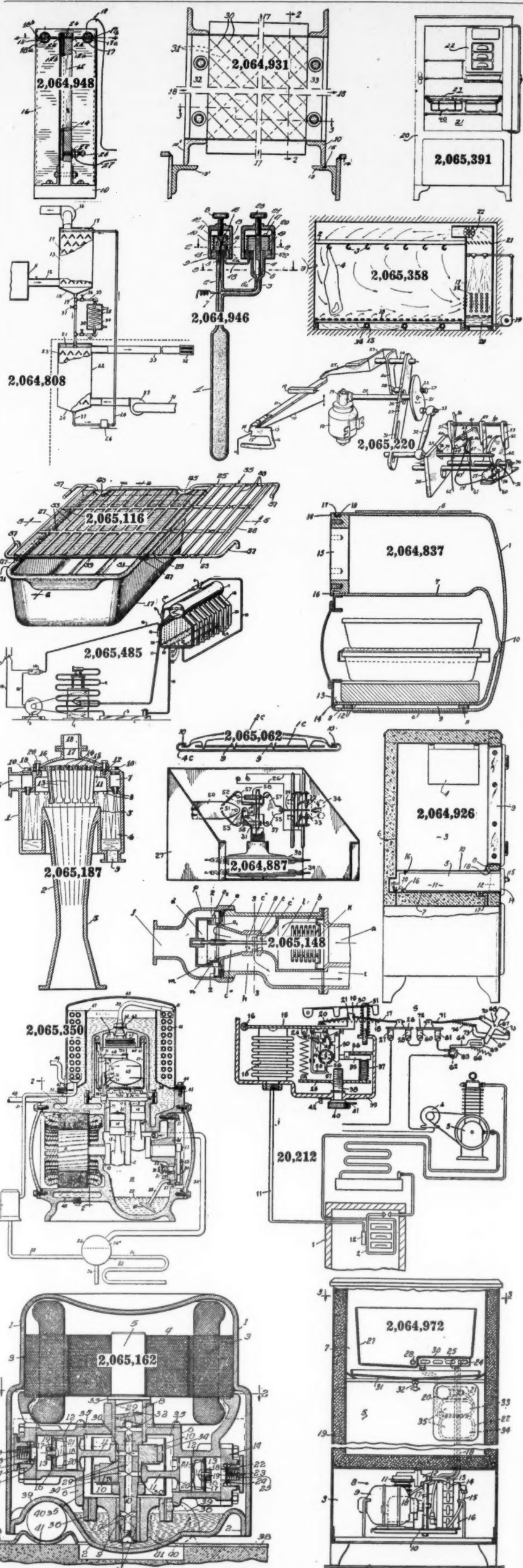
20,212. REFRIGERATOR CONTROL. Estel C. Raney, Columbus, Ohio, assignor to Ranco, Inc., Columbus. Original No. 1,877,967, dated Sept. 20, 1932, Serial No. 608,159, April 29, 1932. Application for

reissue Oct. 30, 1933, Serial No. 695,936. 32 Claims. (Cl. 62-4)

PATENTS

HAVE YOUR patent work done by a

specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

**DISTRIBUTORS WANTED**
FOR THE
FROSTOFF DEHUMIDIFIERThe only full Automatic Defrosting
Unit for household electric refrigerators.
Defrosts Daily—Sells on Sight—Every
refrigerator owner a prospect**FROSTOFF CO., INC., MANUFACTURERS**
250 East 43rd St., New York City

CLASSIFIED ADVERTISING

RATES: Fifty words or less, one insertion, \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning and Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

SALES REPRESENTATIVE to establish and develop commercial refrigeration dealers in the states of Ohio and New York. To be given consideration, application must give full particulars regarding experience and references which will be held confidential. These two openings offer a splendid opportunity with a manufacturer already established nationally but interested in further dealer development in this territory. Box 888, Air Conditioning and Refrigeration News.

POSITIONS WANTED

AIR CONDITIONING sales engineer—wide experience, both engineering and sales from small self-contained units to large central station jobs of several hundred tons. Experience covers both direct expansion and indirect cold water installations through wide range. Can engineer and sell any type of cooling, heating, or ventilating equipment. Thorough training in laying out and estimating sheet metal work and piping as well as all other accessories used in air conditioning. Have had recent experience in training distributors in southern territory for large manufacturer. Capable of taking complete charge of manufacturer's branch office or air conditioning department for large distributor. Have travelled extensively and now free to travel. Available about February 15. Box 892, Air Conditioning and Refrigeration News.

SERVICE MAN, 31, married, ten years experience, Frigidaire and General Electric commercial, household and air-conditioning with wide range in appliance field factory training both companies. Complete equipment. Best references regarding ability and character. Member Refrigeration Service Engineers. Available February 15. Box 893, Air Conditioning and Refrigeration News.

BUSINESS OPPORTUNITY

FOR SALE—Refrigeration service and electrical appliance sales business established eight years. Service department now operating three cars supports business. Automobiles, floor stock, including new refrigerators, washers, ironers, furnaces, small appliances, refrigeration parts and supplies, office equipment and corporate name, in full price of \$6,000.00. Lease does not expire for two years—renewable. Located in one of California's largest and liveliest cities. Sale forced account other immediate interests. Box 887, Air Conditioning and Refrigeration News.

EQUIPMENT FOR SALE

ATTENTION—DAIRY, REFRIGERATION and case men. I have to offer the following Frigidaire units. Model A twin cylinder in perfect shape, at \$22.50 per unit complete. Also model A 125, at \$25.00 per unit. These units have Frigidaire one quarter H.P. motors, sixty cycle, 110/220, with cold control switch and contain SO. Please send deposit and quantity of units wanted. Will ship balance C.O.D. Freight charges collect. REFRIGERATION SUPPLIES JOBBERS, 5622 Woodland Ave., Cleveland, Ohio.

REPAIR SERVICE

MAJESTICS EXCHANGED or rebuilt \$18.50. Genuine Majestic repair and test equipment and parts used throughout. General Electric household units rebuilt \$25. Prices f.o.b. Chicago. Six months' guarantee. Complete Majestic parts price list on request. REFRIGERATION PRODUCTS, INC., 122 West Illinois St., Chicago, Illinois.

GENERAL ELECTRIC and Majestic hermetically sealed units repaired and exchanged. Guaranteed work. Wholesale only. Give model when writing. All prices quoted f.o.b. Chicago. AMERICAN REFRIGERATING ENGINEERS, INC., 2257 Silvertown Drive, Chicago, Illinois.

KRACK
ENGINEERED
LIFETIME COILS AND UNITS
REFRIGERATION APPLIANCES, INC.
1342 W. Lake Street, Chicago

Artic
REG. U. S. PAT. OFF.
(DU PONT METHYL CHLORIDE)

COAST-TO-COAST DISTRIBUTION—The standard Methyl Chloride. Stocked in standard and special 20-lb. containers for prompt delivery at 65 stock points in 46 cities; also Cuba, Mexico and Hawaiian Islands.

THE R. & H. CHEMICALS DEPARTMENT
E. I. DU PONT DE NEMOURS & CO., INC.
WILMINGTON, DELAWARE

SCHOOLS

DETROIT SCHOOL OF REFRIGERATION AND AIR CONDITIONING, 4125 Grand River, Detroit, Mich.

I believe that no field offers opportunities like that of refrigeration and air conditioning. Kindly send information regarding your training in this field to

Name
Address
City State

REPAIR SERVICE

MAJESTIC & GRIGSBY GRUNOW refrigerator and radio parts service. We have purchased all of the old Grigsby-Grunow Majestic Refrigerator and Radio Parts Service. The only original and genuine factory parts and service anywhere in the country. Beware of inferior replacements and parts. G. & G. CO., 5801 Dickens Ave., Chicago.

GRUNOW REPAIR INSTRUCTIONS. Servicemen, have you wanted to repair Grunow but feared for lack of knowledge? One repair job more than covers cost of data and parts pictures for all Grunow models. We can supply correct Grunow refrigerant. PASSAIC REFRIGERATION SERVICE, 522 Gregory Ave., Passaic, N. J.

MAJESTIC HERMETIC UNITS repaired and exchanged at \$18.50 f.o.b. our factory Chicago. Every unit undergoes complete tests for temperature, cycling, wattage consumption, and quietness on genuine Majestic test equipment from the Grigsby-Grunow plant. Six months' factory guarantee. REFRIGERATION MAINTENANCE CORP., 365 E. Illinois St., Chicago, Ill.

FREE—Did you get yours yet? Price list on repairing electric motors for: refrigerators—oil burners—stokers—water coolers—wash machines and air conditioning motors. Out of town motors are picked up and delivered by our motor transportation service. Write for our free dealers' price list. P. J. QUINN'S SONS, INC., Electric Motor Repairing, 166 Vernon Ave., Long Island City, N. Y.

QUESTIONS

Advertising Credits

No. 3014 (Manufacturer, New York)—“We should greatly appreciate any information that you can give us as to the practice of manufacturers in allotting local advertising credits for use by dealers and distributors. These usually take the form of a certain number of dollars per unit which money can then be spent in certain restricted fashions.”

“Any information you have on file will be greatly appreciated by us.”

Answer: A good example of the advertising practices of manufacturers with respect to local dealer advertising is included in the story on Grunow refrigerator product and sales plans for 1937 published in the Jan. 6 issue of AIR CONDITIONING AND REFRIGERATION NEWS. However, the new Grunow plan is probably more generous than that used by most manufacturers, whose appropriations for local dealer advertising are usually on a 50-50 basis.

Total Air-Conditioning Load in U. S.

No. 3015 (Utility, Texas)—“I am preparing an article on air conditioning in the United States and am wondering if you have available in your files a record of the total electrical horsepower of air-conditioning equipment installed in the United States and, if possible, broken down into the amount in each of the states.”

Answer: In Jan. 6 and Jan. 13 issues of AIR CONDITIONING AND REFRIGERATION NEWS you will find the most comprehensive survey of air-conditioning installations, broken down by market classifications and giving refrigeration or electrical horsepower requirements, ever to be published. The data is from large metropolitan areas throughout the country, rather than by states.

Coin Meter Source

No. 3016 (Service company, Connecticut)—“We would appreciate your sending to us the names of the various companies manufacturing coin meters for both appliances and commercial use.”

Answer: The following companies manufacture electric coin meters:
Bugetklok Co.
915 Washington Ave. S., Minneapolis, Minn.
General Electric Co., Industrial Dept.
Schenectady, N. Y.
International Register Co.
15 S. Throop St., Chicago, Ill.



AT YOUR FINGER TIPS

Write for free copies of “ARTIC Service News” containing list of authorized distributors and stocking points, and current information about refrigeration.

Conditioning Associations

No. 3017 (Association, California)—“Please advise if you are in a position to furnish us with some information on the subject of local air-conditioning associations.”

“We would very much appreciate hearing from you at your early convenience as we are desirous of proceeding with our plans to put our present association on a permanent basis.”

Answer: Stories concerning active local air-conditioning associations were published in REFRIGERATION NEWS, as follows: Kansas City, Feb. 26, 1936; Boston, July 8, 1936; Indianapolis, June 17, 1936.

Theater Conditioning

No. 3018 (Manufacturer, Ohio)—“Please wire collect any data you may have showing air-conditioning potential in theaters of 500 to 1,200 seat capacity located in United States or in cities of over 25,000 population. Include if possible tonnage sold in 1935 and 1936.”

Answer: We cannot supply potential for entire country, but can furnish two examples showing variation. In Chicago out of 256 theaters, 149 are air conditioned. In Detroit 21 out of 120 are air conditioned. For data on 1935 and 1936 installations see Jan. 6 and 13 issues of AIR CONDITIONING AND REFRIGERATION NEWS.

Sales Surveys

No. 3019 (Advertising Agency, California)—“Do you have information in your records either on the basis of actual experience of any retailing organizations or on the basis of percentages which have been developed out of the discussion of such subjects along the lines of the following questions:

1. Where prospects originated: a. House-to-house canvass; b. Store; c. Other.
2. Where sales are closed: a. Store; b. Home; c. Husband's office.
3. Deciding factor: a. Man; b. Woman.
4. Time sale closed: a. Morning; b. Afternoon; c. After 6 p.m.

“We would certainly appreciate it if you could give us any assistance along this line.”

Answer: A report of a survey on the sales of 1,000 General Electric appliances was conducted recently, and the results of this survey, giving data on the “Who, When, Where, and How” of major appliance sales factors, were published in the Aug. 26, 1936 issue of the NEWS.

Grunow Address

No. 3020 (Distributor, California)—“Please send me the factory address of the Grunow Co.”

Answer: The name and address of the Grunow company is now the General Household Utilities Co., 2638 N. Crawford Ave., Chicago, Ill.

Air-Conditioning Data

No. 3021 (Manufacturer, Missouri)—“I am under the impression that Business News has a publication either in the form of a manual or pamphlet summarizing the advances made in the air-conditioning field within the last few years, and I am seeking just such information.”

“The available data which I have on this subject deals entirely with values of installed equipment and value of orders booked. What I am primarily interested in is data classified according to the unit. I am primarily interested in size of unit and horsepower requirement.”

“The big field for air-conditioning equipment is the small commercial and domestic installation.”

Answer: In considering your question it is first necessary to review the sources of market data and statistical information in the air-conditioning field. As it stands today there are three sources of such information:

1. The monthly reports on the value of orders booked by 98 manufacturers of air-conditioning equipment as issued by the United States Department of Commerce. This is a new survey inaugurated in 1936.
2. The records on sales of unit air conditioners issued by the Commercial Refrigeration Division of the National Electrical Manufacturers Association.
3. The tabulations on actual installations in major metropolitan areas, drawn up by the power companies in the various areas.

These reports of the Department of Commerce, and of the Refrigeration Division of Nema, are published monthly in the issues of AIR CONDITIONING AND REFRIGERATION NEWS. Reports on actual installations issued by the power companies in principal cities were published in the Jan. 6, 13, and 20 issues of AIR CONDITIONING AND REFRIGERATION NEWS, giving data for more than fifty cities.

A more detailed breakdown will be given for some of these cities, in which the size of each installation will be shown, in future issues of the NEWS. (See start of this survey in this week's issue.)

BUYER'S GUIDE

SPECIAL RATES APPLY TO THESE COLUMNS ONLY
WRITE ADVERTISING DEPT. FOR FULL INFORMATION



MANUFACTURERS

Seamless
Brass & Copper Tubing
Refrigerator Tubing
Water Service Tubing
Carton Packed Tubing
Formed Tubing
Electro Tin Plated Tubing

4-STAR CASE & COOLER FRANCHISE

Consider the outstanding features that the Sherer Franchise offers you.

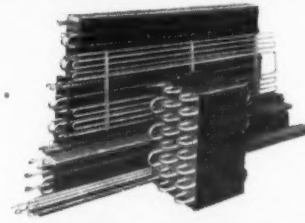
- ★ A COMPLETE LINE of CASES and COOLERS, engineered to a high peak of perfection.
- ★ NEW EQUIPMENT constantly under test and development. New developments open new fields for compressor sales.
- ★ LAYOUT DEPARTMENT—layouts for food store modernization programs without cost or obligation.
- ★ ADVERTISING—Sherer Cases and Coolers regularly advertised by direct mail and in leading food trade publications.

Addition of the Sherer Case and Cooler Franchise to your present line is your move for '37. Desirable territories still available. Write for catalog and franchise details. Be sure to tell us which territory interests you.



Exclusive Case and Cooler Mfgs. . . . Serving Food Retailers Since 1852

"THERMO" FIN COILS



Embodying all of the desirable features of modern fin coils.

WRITE FOR CATALOG

MANUFACTURERS FIN COIL COMPANY

2505-7 So. Pulaski Road

Chicago, Illinois

Greater Capacity for Less Money
A new and better Model 350 Refrigerator, where GREATER CAPACITY is an important item.
THIRTY CUBIC FEET OF STORAGE SPACE—far more than other Refrigerators of comparative size. Plenty of shelf space for 14 cases of beverage, and height enough on top shelf for 24 oz. bottles, too.
An outstanding value, with choice of solid or glass display type doors in top section, and DuLux or Porcelain finish.
Write for Illustrated Folder 350
GLOEKER MANUFACTURING COMPANY
429 Fourth Avenue • Pittsburgh, Pa.

HIGHEST Filtrine EFFICIENCY

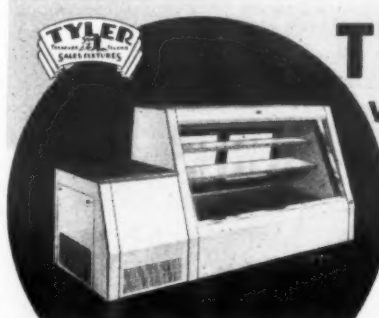
WATER COOLERS

COMMERCIAL — AIR CONDITIONING

From 2 gals. per hour to 500 gals. per minute

WATER FILTERS — STEEL PIPE COILS — SURGE TANKS

FILTRINE MFG. CO., Brooklyn, N. Y.



TYLER'S WELDED STEEL Cases

1937 line offers wide variety and sensational values. 6 big new features and iron-clad guarantee. Only Tyler gives one-piece "welded steel" construction, 100% insulation. Wonderful sales opportunity. Most talked of and fastest selling line on market. WRITE today.

TYLER Sales-Fixture COMPANY
Dept. E. NILES, MICHIGAN

SIX BIG NEW FEATURES

KOLD-HOLD

HAS CONCLUSIVELY PROVEN IN THOUSANDS OF INSTALLATIONS THAT IT IS THE MOST ECONOMICAL, RELIABLE and ADVANTAGEOUS METHOD OF TRUCK REFRIGERATION . . .

KOLD-HOLD MFG. CO., LANSING, MICH.